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OF THE

AMERICAN

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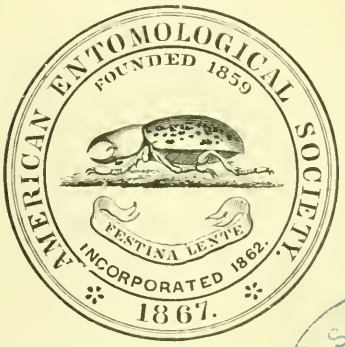

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TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME XXI.

CATALOGUE OF THE COLEOPTERA OF ALASKA, WITH THE SYNONYMY AND DISTRIBUTION.

BY JOHN HAMILTON, M. D.,
Allegheny, Pa.

Fully forty years have elapsed since Graf C. G. Mannerheim completed his Lists of the Coleoptera of Alaska, and as these are now out of print and inaccessible to most American Coleopterists, there seems to be a need for a new List brought down to the present time, especially since the attention of entomologists appears to be turning somewhat in that direction. This catalogue has therefore been compiled with the view of meeting this seeming demand.

Mannerheim's List was composed of a Contribution and three Supplements, issued at various times between 1843 and 1853, and the species were never arranged in proper sequence into Families, Genera and Species. These works have been made the basis of the present catalogue, the species having been placed in proper order in the now recognized Families and Genera with those not known to Mannerheim interpolated.

The author, except in three or four instances, is not responsible for the synonymy, which he has merely selected from the works of prominent systematic writers in America and Europe.

The authority for the distribution in Alaska is always given, the works of Mannerheim being cited as A, B, C, D and Dp. Mr. W. F. Wickham is the authority for all the species taken at Wrangel, Yes Yes Bay, Loring, Port Chester, Prince of Wales Island, Stikine River, B. C., and Glenora, B. C. Rev. I. H. Keen, of Massett, col-

lected all taken on Queen Charlotte Island. The authority for the distribution in the eastern hemisphere and in North America, other than Alaska, is the general records of entomological literature, and in many instances the author's own collection, in which case credit has been seldom taken.

On account of the extent and great dimension of Alaska (which equals the area of all the United States eastward from the Mississippi and northward from the 35th parallel of latitude; or that of Portugal, Spain, France, Switzerland and Italy with Greece thrown in; its southern boundary from British Columbia on the east to the island of Attu on the west being estimated at 2200 miles in an air line, and its greatest breadth at 1400 miles, embracing an area of over 580,000 square miles) a table of latitudes and longitudes of the places mentioned where Coleoptera were collected has been compiled from various sources; but in many instances these must be considered as only approximate, though sufficiently correct for entomological purposes. It has been observed by Mr. Wm. H. Dall, in his book "Alaska and its Resources" (p. 287), that Alaska seems to be divided into two distinct faunal regions as regards birds and fish, that of the great Yukon Valley being almost entirely eastern Canadian. This observation seems to hold true also in regard to Coleoptera; those species taken on the islands and in southern Alaska mostly belonging to the western or Pacific slope fauna, while those occurring on the Kwichpakh (Yukon), which seem to have been taken about Nulato, are such as occur from the McKenzie River to Hudson Bay. In fact, as pointed out in the same work, the Basin of the Yukon is really on the eastern side of the Rocky Mountain extension from Fort Yukon to the mouth of the river; while in the first 700 miles of its course it flows northwestwardly in the basin between the coast and Alaskan range, and the prolongation of the Rocky Mountains, which also trend northwestwardly till about latitude 65°, longitude 142°, where they become much depressed, and turning southwardly at length become blended with the Alaskan Mountains; the river, however, pursuing its northwestwardly course cuts through them at the bend, debouching through a deep canon on the eastern side about 130 miles above Fort Yukon.

Alaska presents grand possibilities to the enterprising, enthusiastic Coleopterist. It is comparatively unexplored territory. Sweden, much of it in a higher latitude and with a lower average temperature, has on its catalogue near 3500 species; while Alaska, more than three and one-third times larger, only lists 572 species.

APPROXIMATE LATITUDE AND LONGITUDE OF THE PLACES IN ALASKA MENTIONED IN THIS CATALOGUE.

Afognak Island, Lat. 58° 20′—Long. 152° 30′
Amatignak Island (southernmost point in Alaska), Lat. 51° 12′—Long. 179° 05′
Atkha Island, Narzan Bay, Lat. 51° 11′—Long. 174° 15′
Attu Island, Cape Wrangel, Lat. 52° 58′—Long. 187° 34′
Behring Island, Asia, Lat. 55° 12′—Long. 194° 15′
Bristol Bay, Lat. 58°—Long. 158°
Cape Prince of Wales, Lat. 65° 33′—Long. 167° 59′
Chtagaluk, now Montague Island, N. point, Lat. 60° 57′—Long. 147° 32′
Copper Island, Asia, N. W. Cape, Lat. 54° 28′—Long. 193° 30′
Division line between America and Asia in Behring Sea—Long. 193°
Dixon's Inlet, the S. E. point of Alaska—Lat. 54° 40′
East Cape, Asia, Lat. 66° 3′—Long. 169° 44′
Fort Alexander, Lat. 58° 57′—Long. 158° 18′
Fort Constantine, Lat. 60° 30′—Long 147° 30′
Fort St. Michael, Lat. 63° 48′—Long. 161° 44′
Fort St. Nicholas, Lat. 60° 32′—Long. 151° 19′
Fort Simpson, McKenzie River, B. C., Pat. 62°—Long. 121°
Fort Wrangel, Lat. 56° 31′—Long. 132° 23′
Fort Yukon, Lat. 66° 34′—Long. 145° 18′
Hunter's Bay, Yes Yes Bay, Loring and Port Chester, are places in the islands of southeastern Alaska, mentioned by Mr. Wickham.
Glenora, B. C., on the Stikine River, Lat. 57° 50′
Jasper House, Alberta, Lat. 53° 16′—Long. 118° 10′
Kadjak Island, Flagstaff of St. Paul, Lat. 57° 48′—Long. 152° 21′
Kaknu River, Kenai, mouth in Cook's Sound, Lat. 60° 32′—Long. 151° 19′
Kenai Peninsula, between Lat. 59° 12′-61° 5′—Long. 148°-152°
Kurile Islands, Asia, between Lat. 45°-51°—Long. 204°-213°.
Kwichpakh River; the name given by the Russians to all of the Yukon known to them, but now limited to one of its outlets about fifty miles in length, emptying into Behring Sea, in Lat. 62° 41′—Long. 161°
Methy, B. A., about Lat. 58°—Long. 110°
Mount Edgecombe, Lat. 57° 3′—Long. 135° 40′
Norton Sound, Lat. 63° 28′—Long. 161° 42′
Nulato, on the Yukon, Lat. 61° 42′—Long. 157° 54′
Plover's Bay, Asia, entrance, Lat. 64° 24′—Long. 173° 26′
Point Barrow, Lat. 71° 27′—Long. 156° 15′
Port Clarence, Cape Spencer, Lat. 65° 16′—Long. 166° 51′ (The most northern record of Coleoptera in Alaska.)
Portland Canal, head of, Lat. 55° 56′—Long. 130°
Prince of Wales Island, southeast point, Lat. 54° 40′
Queen Charlotte Island, Rose Harbor, Lat. 52° 9′—Long. 131° 15′
Sitkha, U. S. Barracks, Lat. 57° 3′—Long., 135° 18′
Stikine River, mouth, Lat. 56° 41′—Long. 132° 22′
St. George Island, West Cape, Lat. 56° 38′—Long. 169° 44′
St. Paul Island, West Cape, Lat. 57° 10′—Long. 170° 1′
St. Lawrence Island, N. W. Cape, Lat. 63° 51′—Long. 171° 29′

St. Lawrence Bay, Asia, Lat. 65° 30′—Long. 170° 44′
St. Matthew's Island, southeast point, Lat. 60° 18′—Long. 172° 4′
Tschunuktnu River, Kenai, enters Cook's Inlet, Lat. 61° 16′
Unalaschka, U. S. C. S. Stat., Lat. 53° 54′—Long. 166° 33′
Ungua Island, Coal Harbor, Lat. 55° 44′—Long. 160° 49′

Regarding the earth as a sphere, each degree of latitude equals 69.5 statute miles. A degree of longitude on the equator is of the same length, but each degree becomes shorter as an advance is made towards either pole. As it is often desirable to know the length of a degree of longitude on different parallels of latitude the following table of approximate lengths may be useful:

Length on parallel of	25°,	62.988	statute miles.
" "	30°,	60.189	"
" "	35°,	56.922	"
" "	40°,	53.239	"
" "	45°,	49.144	"
" "	50°,	44.764	"
" "	55°,	39.854	"
" "	60°,	34.750	"
" "	65°,	29.371	"
" "	70°,	23.770	"
" "	75°,	17.988	"
" "	80°,	12.058	"
" "	85°,	6.058	"
" "	89°,	1.213	"

A knowledge of the length of the day at the Summer solstice may be of use to the entomologist contemplating a trip to Alaska and the latitude for each half hour's increase will be found in the subjoined table.

Summer solstice. Length of day.		Latitude	Summer solstice. Length of day.		Latitude.
hours	minutes		hours	minutes	
12		Equator	20		63° 20′
12	30	8° 34′	20	30	64° 08′
13		16° 43′	21		64° 48′
13	30	24° 10′	21	30	65° 20′
14		30° 46′	22		65° 46′
14	30	36° 28′	22	30	66° 06′
15		41° 21′	23		66° 20′
15	30	45° 29′	23	30	66° 28′
16		48° 50′	24		66° 32′
16	30	51° 57′	one month		67° 23′
17		54° 28′	two months		69° 50′
17	30	56° 36′	three months		73° 39′
18		58° 25′	four months		78° 31′
18	30	59° 57′	five months		84° 05′
19		61° 16′	six months		90°
19	30	62° 24′			

BIBLIOGRAPHICAL ABBREVIATIONS.

A.—Beitrag zur Kæfer-Fauna der Aleutischen Inseln, der Insel Sitkha und neu-Californiens, von Graf C. G. Mannerheim, Bul. Mosc. 1843, ii, p. 175–316. Separatum, pp. 1–142.

B.—Nachtrag zur Kæfer-Fauna der Aleutischen Inseln und der Insel Sitkha, von Graf C. G. Mannerheim, Bul. Mosc. 1846, ii, pp. 501–516. Separatum, pp. 1–17.

C.—Zweiter Nachtrag zur Kæfer-Fauna der Nord Amerikanischen Laender des Russischen Reiches, von Graf C. G. Mannerheim, Bul. Mosc. 1852, ii, pp. 283–387. Separatum, pp. 1–107.

D.—Dritter Nachtrag zur Kæfer-Fauna der Nord Amerikanischen Laender des Russischen Reiches, von Graf C. G. Mannerheim, Bul. Mosc. 1853, iii, pp. 95–273.

The figures following A, B, C, D, are the numbers attached to the species in these works.

Dp, 270–273.—Bul. Mosc. iii, pp. 270–273.

T.—Transactions of the American Entomological Society.

Veg. Exp.—Coleoptera and Hemiptera of the Vega Expedition to Behring Strait [Tr.]. Three separates numbered consecutively, pp. 1–71.

Separat-Abdrucke.—Ur D Vega Expeditionens vetenskapliga Iakttagelserd, B D iv, Stockholm, 1885.

CICINDELIDÆ.

1. Cicindela longilabris Say, *albilabris* Kirby.—The Yukon, Hudson Bay region, Nova Scotia, New Foundland, Wisconsin, Colorado, Nebraska; var. *montana* Lec., Nebraska, Utah, Montana; var. *perviridis* Schaupp, California, Oregon, Utah, New Foundland; var. *Laurentii* Schaupp, Colorado.

CARABIDÆ.

2. Trachypachys inermis Mots., *Holmbergi* Mann., D 3.—Kenai, Vancouver Island, British Columbia, Washington, Idaho, southward to New Mexico.

3. Cychrus angusticollis Fisch. (brown form), *velutinus* Mann., Bul. Acad. Petr. 1844, ii, 53 (black form), A 8, Dp, 270.—Unalaschka, Kenai, Sitkha, Wrangel, Stikine River, B. C., Vancouver Island, Oregon, California, Kamtschatka.

4. C. cristatus Harr., Bost. Jour. ii, 200, *reticulatus* Mots., Kaef. Russ. 90; C 1, D 6.—Unalaschka, Oregon, Southern California.

5. C. marginatus Fisch., Ent. Russ. i, 79; A 9, Dp, 270.—Kenai, Afognak Kadjak, Unalaschka, Sitkha, Wrangel, Stikine River, B. C., Vancouver Island, Montana (Mullan, Helena); var. *Fulleri* Horn, occurs in Oregon.

6. Carabus Vietinghovii Adams, Mem. Mosc. iii, 170, var. *fulgidus* Gebl. Ent. Russ. iii, 229; C 2; Kirby, Faun. Bor.—Behring Strait, northern parts of the Yukon, "extending towards British Columbia, and towards Hudson Bay," Horn.—Arctic and Eastern Siberia, the Amur countries, Turkestan; var. *Schaumi* occurs likewise on the Amur.

6a. C. Hummeli Fisch., var. *Burnaschevii* Dej., var. *obversus* Mots., var. *Middendorfi* Men., var. *smaragdulus* ‡ Kraatz, not Mann.; var. *ochoticus* Mann. var. *tristiculus* Kraatz (Gaschkevitschi ‡ Mor. not Mann.).—The varieties seem to be founded on color and small differences in elytral sculpture. *obversus* is the more elongate, resembling (Mots. Ins. Sib. 103) *Vieghtinghovi*; var. *ochoticus* occurs in Alaska, whence there are examples in Mr H. Ulke's collection, from Schaum.

7. C. truncaticollis Esch., Zool. Atlas, v, 22, Vega Exp. p. 12.—Alaska, Sierra Nevada Mountains. Asiatic shores of Behring Strait southward to Kamtschatka, and westward to the Gulf of Obi and the northern end of the Ural Mountains.

8. C. chamissonis Fisch., Ent. Russ. i, 88; *brachyderus* Wied., Germ. Mag. iv, 110; *groenlandicus* Chaud., A 11, Dp, 270.—Unalaschka, Kadjak, White Mountains, N. H., Labrador, Greenland.

9. C. tædatus Fab., var. *baccivorus* Fisch., Ent. Russ. i, 87; *seriatus* ♀ Wied. l. c. 109; A 12, Dp, 270.—Unalaschka, Afognak, Kadjak; var. *oregonensis* Lec., Oregon; var. *Agassii* Lec., Lake Superior region to Colorado and New Mexico.

NOTE.—*Oregonensis* and *Agassii* are doubtfully united with *gladiator* Mots. from Hudson Bay by Mr. I. Sahlberg, Deuts. Ent. Zeit. xxiii, 1879, heft i, 163; but this itself does not seem to be more than a var. of *tædatus*.

Var. *tædatus* and *Agassii* are not sufficiently differentiated in catalogues to make the distribution of the former anyway certain, but as a whole the species extends from Alaska to Hudson Bay.

10. Elaphrus obliteratus Mann., D 1.—The island of Kadjak.

11. E. riparius Linn., *californicus* Mann., var. *gratiosus* Mann., *similis*, *punctatisimus* Lec.; A 21, D 2, var. *gratiosus* inhabits the peninsula of Kenai.—The species, as a whole, extends from Alaska to California, through the Rocky Mountains to New Mexico, and eastward to Michigan, Vermont, Canada and the Hudson Bay region; the greater part of Europe, and in Asia from the Crimea, Turkestan, Dauria and the Amur northward through Siberia.

12. Loricera cærulescens Linn., Syst. Ent. p. 243; *pilicornis* Fab. *semipunctata* Esch., Zool. Atl. v, 25; *neoscotica* Lec. A 52, D 8.—Kenai, California, westward to Lake Superior, Canada, Michigan, Magdalin Islands and Nova Scotia; Kamtschatka, the Amur countries, eastern and western Siberia, central and northern Europe. Var. *rufilabris* Mots. occurs in Siberia.

13. L. 10-punctata Esch., A 26, D 9; two varieties.—The islands Kadjak, Chtagaluk, Sitkha, Wrangel, Vancouver, Queen Charlotte.

14. L. congesta Mann., D 7.—Kenai.

15. Notiophilus aquaticus Linn., Vega Exp. p. 47.—Behring Strait, Alaska; all northern Asia, northern and central Europe. The type of *aquaticus* ‡ Kirby in the British Museum is *semistriatus* Say (LeConte).

16. N. sylvaticus Esch., A 22, Dp, 270.—Kenai, Sitkha, Queen Charlotte Island, Stikine River, B. C., New Hampshire.

17. Leistus ferruginosus Mann., *ferrugineus* ‖ Esch., Dej., A 14, C 3, Dp, 270; two varieties.—Sitkha, Kenai Queen Charlotte Island, Vancouver.

18. Nebria gregaria Fisch., A 17, Dp, 270; two varieties.—Unalaschka, Sitkha.

19. N. metallica Fisch., A 15, Dp, 270.—Unalaschka, Atkha, Afognak, Sitkha, Kenai, Kadjak, Stikine River, Glenora, B. C., California.

20. N. Gebleri Dej. Esch., A 16.—Sitkha, Vancouver.
21. N. viridis Horn, Trans. Amer. Ent. Soc. iii, 101.—St. Michael's (Alaska), Washington.
22. N. Sahlbergi Fisch., *castanipes* Kirby, *mœsta* Lec., A 19, Dp, 270; two varieties.—Kenai, Sitkha, Glenora, B. C., Vancouver, British Columbia, Queen Charlotte Island, Oregon Hudson Bay region, Lake Superior region, Michigan, Mt. Washington, N. H., Province of Quebec, Labrador.
23. N. bifaria Mann., *carbonaria* ‡ Mann, C 1, D 5, Dp, 12.—Island of St. Paul, St. Michael's (Horn), Kamtschatka.
24. N. Mannerheimii Fisch., A 18.—Sitkha, Wrangel, Glenora, B. C., Vancouver, British Columbia.
25. N. Eschscholtzii Mén., *castanipes* ‡ Lec., Bul. U. S. Geol. Surv. iv, No. ii, p. 479.—Alaska, Vancouver, British Columbia, Oregon, California.
26. N. carbonaria Esch (*l. c.*).—Alaskan Islands, Kamtschatka.
27. N. frigida Sahlb., Vega Exp. p. 47.—Coast of Behring Strait; Ochotsk (Mount Morikan), much of southeastern Siberia.
28. N. parvula Sahlb. (*l. c.*).—Coast of Behring Strait.
29. Pelophila Eschscholtzii Mann., A 20.—Unalaschka, Methy (Lat. 58°—Long. 110°)
30. Dyschirius æneus Dej., *frigidus* Mann., *integer*, *dentiger* Lec. (Fauv. Rev. Ent. viii, 96), *falciger*, *rufiventris* Lec., D 11.—*Frigidus* occurs on Kenai; *integer*, in California (Rio, Colorado); *rufiventris*, in Louisiana; *dentiger*, New York, New Jersey, Pennsylvania; *falciger*, Florida; *æneus*, Siberia, Japan, Dauria, Europe.
31. D. transmarinus Mann., Mots. D 10.—Sitkha.
32. Tachypus elongatus Mots., D 51.—Sitkha.
33. Bembidium planiusculum Mann., A 87, Dp. 271.—Kenai, Sitkha, Glenora, B. C., Vancouver, Utah, Wyoming.
34. B. companulum Mann., D 59.—Eastern shore of Kadjak, British Columbia.
35. B. incertum Mots., Bul. Mosc. 1845, iv, 350, Dp, 271.—Kenai, B. C. (taken by Mr. Wickham).
36. B. cicatricosum Menet, Mots. Cat. Russ. Kaef. p. 11.—Kwichpakh River (Yukon).
37. B. maeklini Lec., *incertum* ‡ Mann., C 20.—Sitkha, Utah, Colorado (San Miguel County), Smith, Mis. Col. vi, 14
38. B. tetraglyptum Mann., D 58.—Kadjak, Chtagalnk, Wyoming (Yellowstone Park), Colorado, Michigan.
39. B. funerum Lec.—Wrangel, Stikine River, B. C., British Columbia, Saskatchewan River, Wyoming.
40. B. Kuprianovii Mann., *oripennis* Mots., A 88.—Sitkha, New York (Buffalo)
41. B. biimpressum Mann., A 89.—Sitkha.
42. B. breve Mots., Bul. Soc. Mosc. 1845, i, 28, C 21.—Sitkha, Kamtschatka.
43. B. 4-foveolatum Mann., D 90, Dp, 271.—Kenai, Sitkha, Stikine River, Glenora, B. C.
44. B. bimaculatum Kirby, D 55.—Kenai (Cook's Inlet), Hudson Bay region, Canada, Colorado, New Mexico, Kansas.
45. B. lucidum Lec. var. *substrictum* Lec., An. Lyc. N. Y., iv, 166; D 56, two varieties.—Seashore of Kenai, Glenora, B. C., British Columbia, Hudson Bay region, Lake Superior, Canada, Michigan, Idaho, Wyoming, Colorado, New Mexico.

46. C. Grapii Gyll., *picipes* ‡ Mann., *nitens* Lec., D 57.—Eastern shore of Kadjak, interior of Kenai, Fort Simpson (McKenzie River) eastward to New Hampshire, Michigan, New Mexico, Northern Siberia, Europe.
47. B. dentellum Thunb., *undulatum* Sturm., *arcuatum* Lec., D 53.—Kenai, Colorado, Michigan, Massachusetts, Pennsylvania, West Virginia, Siberia, Europe.
48. B. incrematum Lec., *nigripes* ‡ Mann., C 19.—Common in Sitkha, British Columbia, Washington, Oregon, California, Province of Quebec.
49. B. quadraticollis Mann., *? nigripes* Kirby. D 54, Kenai; *nigripes*.—British Columbia, Hudson Bay region, Michigan, Colorado.
50. B. flavopictum Mots., *pictum* || Lec.—Wrangel, Utah, Wyoming, Colorado, Kansas, Missouri, Ohio, Canada.
51. B. fortestriatum Mots., C 22, Dp, 271.—Kenai, Sitkha.
52. B. cautum Lec.—Wrangel, Colorado, Kansas, Michigan, Massachusetts, New Hampshire.
53. B. glabriusculum Mann., D 52.—Sitkha.
54. B. spectabile Mann , C 15.—Sitkha.
55. B. oblongulum Mann., D 16.—Sitkha, Queen Charlotte Island, Massachusetts, New Hampshire.
56. Tachys nanus Gyll., *rivularis* Mots., *inornotus* Say, *Tachytes picipes* Kirby, D 60.—Sitkha, North America generally, likewise Siberia, Europe and Algeria.
57. Patrobus septentrionus Dej., *hyperboreus* Dej., *foveocollis* Esch., *? fossifrons* Esch., *lacustris* Mots., *longiventris* Mann., *tenuis, rufipes* Lec., *? obtusiusculus* Chaud., *? stygicus* Chaud.; var. *foveocollis* occurs in Unalaschka commonly, A 32; var. *fossifrons* = *cinctus* Mots., Unalaschka, Chtagaluk, Afognak, Kadjak, Kamtschatka, Ochotsk, A 33, Dp, 271; var. *lacustris* Mots., Ins. Siberia, pp. 130 and 199, Kirghes Steppes, Oulou-Tau Mountains; var. *longiventris* Mann., D 48, Kadjak, common; var. *obtusiusculus*, Hudson Bay; var. *stygicus*, New Foundland, ? Labrador; var *tenuis*, Lake Superior region, Labrador; var. *rufipes*, Red River of the North. As a whole, the species extends entirely across the continent, and southwardly in the Atlantic region to New Hampshire and northern Michigan; Siberia, Arctic and mountainous Europe.
58. P. aterrimus Dej., *fulcratus* Lec., A 34.—Sitkha, Glenora, Vancouver, Wyoming, Colorado.
59. Trechus chalybeus Dej., *californicus* Mots., *micans* Lec., *fulvus* Lec., A 83, C 18, Dp, 271; three varieties.—Unalaschka, Chtagaluk, Afognak, Kadjak, Kenai, Sitkha, Stikine River, Washington to California, New Mexico, Colorado, Lake Superior, Michigan, New Hampshire, Massachusetts.
60. T. ovipennis Mots., *lævigatus* Lec., C 17, Dp, 271.—Chtagaluk, Sitkha, Wrangel, Vancouver, California.
61. Pterostichus crenicollis Lec.—Wrangel, Queen Charlotte, Vancouver, Washington, Oregon.
62. P. herculeanus Mann., A 52.—Sitkha, Vancouver, Oregon, Washington.
63. P. validus Dej., *algidus* Lec., A 53, Dp, 270.—Atkha, Afognak, Sitkha, Port Chester, Vancouver, Fort Jasper (Alberta), Oregon, California.
64. P. amethystinus Esch., Chaud., Bul. Mosc. 1838, p. 13; A 54.—Sitkha, Yes Yes Bay, Loring, Hunter's Bay, Port Chester, Queen Charlotte Island, Vancouver to Oregon.

65. P. castaneus Dej., Sitkha, Wrangel, Yes Yes Bay, Loring, Hunter's Bay, Port Chester, Queen Charlotte Island.
66. P. brunneus Dej., *scutellaris* Lec., A 56.—Sitkha, Oregon, California.
67. P. congestus Mén., Bc. Petr. 1844, ii, 59; *illustris* Lec.—Alaska, California.
68. P. agonus Horn, Tr. Am. Ent. Soc. viii, 140.—Yukon River (Alaska).
69. P. vitreus Dej., *oblongopunctatus* Gebl. not Fab., *mækliui* Lec., *orinomum* Leach, C 7.—Sources of the Kaknu River, Kenai), Wrangel and the opposite coast, Stikine River, Vancouver, California, Siberia, northern Europe.
70. P. orinomum Kirby, *adstrictus* Esch., *oblongiusculus*, *obtusangulus*, *alternatus* Mots., A 59, Dp, 270.—Atkha, Unalaschka, Sitkha, Oregon, Idaho, Colorado, Hudson Bay region to 65° Lat., Labrador.
71. P. Luczotii Dej., *oblongonotatus* Say, *seriepunctatus* Mann., A 60.—Sitkha, Queen Charlotte Island, Stikine River, B. C., Glenora, Fort Simpson on the McKenzie River, Hudson Bay region to Maine, New York, Pennsylvania, Nebraska, Wyoming, Colorado, New Mexico.

Var. *sexpunctatus* Mann., D 19.—Common on the island of Kadjak, rare on Afognak, Vancouver, Fort Simpson (McKenzie River).

NOTE.—This and the two preceding species have been so confused by collectors that some of the catalogue records are of little value.

72. P. commixtus Chaud., Bul. Mosc. 1850, iii, 135, Cp, 376; separat. p. 93.—Sitkha.
73. P. patruelis Dej., *bicolor* Kirby, *linearis* Mann., D 17.—Month of the Kaknu (Kenai), Hudson Bay region, Lat. 54°, southward to Pennsylvania.
74. P. rufiscapus Mann., D 18.—Kadjak.
75. P. vindicatus Mann., D 22, two varieties.—The southern and western shores of Kadjak.
76. P. rugulosus Mots., C 8.—Unalaschka.
77. P. ventricosus Esch. Dej. Chaud.—Unalaschka, Sitkha.
78. P. subexaratus Mann., *ventricosus* || Mann., A 61, D 19, two varieties.—Unalaschka (common), Fort Michael, the Kurile Islands.
79. P. pinguedineus Esch. Dej. Chaud., A 62, Dp, 270.—Island of St. Paul, Unalaschka, Afognak, Kadjak, Sitkha.
80. P. hyperboreus Mann., D 20.—Island of St. George.
81. P. hudsonicus Lec., Proc. Acad. Nat. Sci. 1873, 315.—Alaska, Hudson Bay territory, Lake Superior, New Hampshire.
82. P. similis Mann., C 9.—Islands of St. George and St. Stephens; var. *quadricollis* Mann., D 29, Vega Exp. p. 17.—Island of St. George, St. Lawrence Bay (Peninsula of Tschutsk).
83. P. fatuus Mann., D 23, three varieties.—Southern and western shore of Kadjak, Sitkha.
84. P. riparius Dej., *fuscoæneus* Chaud., A 64, D 58, Dp, 270.—Kadjak, Kenai, Chtagaluk, Sitkha, Wrangel, Stikine River, B. C., Glenora, Tr. Am. Ent. Soc. 1869, 248.
85. P. rotundicollis Mann., D 27.—Island of Atkha.
86. P. confusus Mots., Col. Amur. 1860, 93; Proc. Acad. Nat. Sci. Phil. 1873, p. 315.—Common in the Kurile Islands, but no American record has been observed.
87. P. subcaudatus Mann., D 28, two varieties.—Abundant on the Tschunuktnu in Kenai.

88. P. empetricola Dej., A 63, D 25.—Atkha, Unalaschka, Kadjak, Afognak, Kenai, Sitkha, Hudson Bay territory; var. *frigidus* Dej., American side of Behring Strait, Kamtschatka, Siberia, Vega Exp. p. 48.
89. P. ruficollis Mann., D 24.—Island of Afognak.
90. P. mandibularis Kirby, *brevicornis* Kirby, *fastidiosus* Mann., *ochoticus* Sahlb. D 26.—Common in Kenai, Fort Simpson (McKenzie River) to Hudson Bay and southward to Lake Superior, Vermont and Massachusetts, Arctic Siberia.
91. P. arcticus Sahlb., *infimus* Maek. not Chaud.—American side of Behring Strait. All northern Siberia and Arctic Europe. Vega Exp. p. 21 and 48.
92. P. splendidus Sahlb.
93. P. epipleuralis Sahlb.
94. P. planus Sahlb.—This and the two preceding species were taken on the American side of Behring Strait. Vega Exp. p. 49 and 50.
95. Amara Eschscholtzii Chaud. not Mann., Bul. Mosc. 1837, 7, 36.—Sitkha, high regions of the Rocky Mountains to New Mexico, Kamtschatka.
96. A. infausta Lec., *rufimanus* || Mots., *carinata* ‡ Mann., D 31.—Kadjak, Kenai.
97. A. angustata Sahlb.—American coast of Behring Strait. Vega Exp. p. 51.
98. A. melanogastrica Dej., A 72, Dp, 271.—Unalaschka, Kadjak, Kamtschatka.
99. A. hyperborea Dej., *Eschscholtzii* ‡ Mann., *longicollis* Mots., *obtusa* Lec., C 13, two varieties.—Island of St. Paul, Kenai, Fort Simpson (McKenzie River), high regions of the Rocky Mountains, Stupart's Bay (Hudson Strait), Labrador, Vermont, Arctic Siberia, Kamtschatka to eastern Dauria.
100. A. glacialis Mann., D 32, two varieties.—Kenai and on the main land, Kamtschatka.
101. A. insignis Dej., A 68, D 34, two varieties.—Sitkha, California.
102. A. impuncticollis Say, *trivialis* ‡ Dej., *anthracina* Hald., *difficilis* Lec. (discolored example), D 33, two varieties.—Atkha, common on the eastern shore of Kadjak, Montana, Lake Superior region northward to 55° Lat. Canada to Maine, Middle and Western States to the Rocky Mountains.
103. A. litoralis Mann., A 66.—Sitkha, Wrangel, Canada, northward to 58° 30′, Kamtschatka.
104. A. erratica Duft., Sturm., *punctulata* Dej., *lævipennis* Kirby, *vulgaris* ‡ Kirby, *inepta* Lec., D 35.—Atkha, eastern coast of Kadjak, the interior of Kenai, Queen Charlotte Island, British Columbia to Hudson Bay, southward to Vermont and Lake Superior, and through the Rocky Mountains to New Mexico; Arctic Siberia southward to Mongolia and Turkestan, northern and middle Europe.
105. A. interstitialis Dej., *patruelis* Dej., *inæqualis* Kirby, *splendida* Hald., C 11. —Tschishlikhath (on the continent), British Columbia, Washington, Oregon, California, Fort Simpson (McKenzie River) eastward to Hudson Bay and Nova Scotia, southward through the Alleghanies to Pennsylvania and through the Rocky Mountains to New Mexico; Arctic Siberia, Kamtschatka, Arctic Europe; var. *bipartita* Mots., occurs at Irkutsk; var. *borealis* Mots., in Turkestan.
106. A. remotestriata Dej., *remota* Zimm., *discors* Kirby, *indistincta* Mann., *relucens* Mann., ♁, *terrestris* Lec., A 69, D 36, 37, several varieties.—Unalaschka, eastern shore of Kadjak, interior of Kenai, Glenora, B. C., British

Columbia to northern California, Idaho, Montana to New Mexico, Minnesota, Iowa, Wisconsin to New York, New Jersey, Hudson Bay territory to Canada; Kamtschatka.

107. A. brunnea Gyll., *lapponica* Sahlb., *Sahlbergi* Zett., *amplicollis* Mann., D 38.—Kenai, Glenora, B. C., Washington, Colorado; northern and central Europe; northern and eastern Siberia.

108. Badister ferrugineus Dej., California; *submarinus* Mots., a variety, occurs in Alaska, Bul. Mosc. 1859, iii, 158.

109. Calathus ingratus Dej., *confusus* Lec., A 35, Dp. 271.—Unalaschka, Afognak, Kadjak, Stikine River, B. C., British Columbia, the boreal regions of Canada to Hudson Bay and Labrador, Lake Superior region, Colorado, New Mexico; var. *incommodus* Mann., D 39, two varieties.—Kadjak, various places on Kenai.

110. C. advena Lec., An. Lyc. N. Y., iv, 217, Lake Superior, Vermont, Maine; var. *mollis* Esch., A 43, C 5, three varieties, Unalaschka, Atkha, Sitkha; var. *lenis* Mann., D 40, Kadjak, Afognak; var. *dulcis* Mann., D 41, interior of Kenai.

111. Platynus maurus Mots., *angusticollis* ‡ Kirby; var. *8-foveolatus* Mack. (elytra with four dorsal punctures), *stygicus* Lec., Kadjak (LeConte), Lake Superior region, Hudson Bay region to Lat. 65°, New Foundland.

112. P. bicolor Dej., *riparius* Gebl. (1830), *castancipennis* Mots. (1845), *marginellus* Lec. (1860), *fallax* Moraw (1863), Alaska, Fort Simpson (McKenzie River), Mount Washington, N. H., California; Kamtschatka, Siberia, the Amur countries, the Kirghes Steppes.

113. P. erasus Lec.—Wrangel (Wickham), Vancouver Island.

114. P. impressus Panz, Dej., sp. iii, p. 135.—Kamtschatka, Arctic, eastern and western Siberia; northern and central Europe; var. *splendidulus* Mots., Ins. Siberia, 1845, p. 138 Sitkha; Kamtschatka; *perforatus* Lec., Methy (British America, Lat. 58°, Long. 110°.

Note.—This synonymy, suggested by Dr. LeConte, is not fully established and it would perhaps be more accurate to place *splendidulus* in our catalogues as a species.

115. P. planipennis Mots., Kaef. Russ. p. 68, Cp, 377.—Sitkha.

Note.—According to Dr. Geo. H. Horn, Tr. Am. Ent. Soc. xix, 43, this is probably a variety of *fossiger* Dej. which occurs in California, Oregon and Colorado, and which has probably the following synonymy: *brevicornis* Dej., A 47, 48, *famelicus* Menet, *robustus* Mots.

116. P. Bogemanni Gyll., *obsoletus* Say, *borealis* Mots., *strigicollis* Mann., *placidus* ‡ Lec., C 6, D 42.—Main land at the sources of the Kaknu and on the peninsula of Kenai, British Columbia to Hudson Bay, Canada and the United States generally; Siberia and northern Europe.

117. P. quadripunctatus DeG., Payk. Dej., *octocolus* Mann., *stigmosus* Lec., D 47.—Peninsula of Kenai, the boreal regions of British America to Hudson Bay and southward to New York, western Pennsylvania, Michigan and Wisconsin; through the Rocky Mountain region to New Mexico; Kamtschatka, eastern and western Siberia, Dauria, boreal and alpine Europe.

118. P. bembidioides Kirby, *cicatricosus* Mots., D 46.—Kwichpakh River, interior of Kenai, Washington, boreal regions of British America westward

from Hudson Bay and southward to Lake Superior, and through the Rocky Mountains to New Mexico.

119. P. fragilis Mann., D 44, Sitkha; ?*similis* Kirby, British America, locality not given; ?*picicornis* Lec., Jasper House (Alberta), upper Michigan, Massachusetts (Blanchard).

NOTE.—Should this synonymy, suggested by Dr. LeConte, be confirmed, *similis* will have the precedence.

120. P. ruficornis Lec., 1850. *gratiosus* Mann., 1853, D 43, Kadjak, Lake Superior region; ?*lenus* Dej., *picipennis* var. C, Kirby.—Hudson Bay region Lat. 54°; Tr. Am. Ent. Soc. 1869. 248.

NOTE.—*Lenus* will have precedence should the synonymy of Chaudoir be accepted, *l. c.*

121. P. exaratus Mann., D 45.—Eastern coast of Kadjak.

122. Miscodera arctica Payk., *erythropus* Mots. (Ins. Siberia, p. 76); *americana* Mann., D 30, *Hardyi* Chaud.—Kenai, boreal America to New Foundland and southward to northern Michigan; eastern Siberia and the countries of the Amur, boreal and mountainous Europe. A variable species.

123. M. insignis Mann., C 10.—Sitkha; rare.

124. Harpalus fulvilabris Mann., D 12, two varieties.—Kadjak, British America (on the Saskatchewan).

125. H. somnulentus Dej., D 77.—Sitkha.

126. H. innocuus Lec.—Wrangel (Wickham), Marquette (Mich.); British Northwest Territory (my examples).

127. H. curtatus Mann., D 13.—Peninsula of Kenai.

128. Tachycellus nigrinus Dej., *tibialis* Kirby, *quadricollis* Lec., A 80, C 14, Dp. 270, two varieties.—Kadjak, Sitkha, Queen Charlotte Island, California, Lake Superior region and northward to Lat. 50°.

129. T. cognatus Gyll., *Deutschii* Sahlb., *ruficrus* Kirby, *nitens* Lec.; var. *axillaris* Mann., *quadripunctatus* Mots. (Rus. Kaef.), D 14, three varieties: *a*, Kadjak; *b*, Sitkha; *c*, Nutschekon the island of Chtagaluk; var. *longiusculus* Mann., D 15, Kenai, common; var. *conflagratus* Mann., D 16. As a whole the species is found in various places across the northern part of the continent to Nova Scotia. Mount Washington, N. H., Michigan, Lake Superior, Colorado, California; Arctic Siberia, northern and central Europe.

AMPHIZOIDÆ.

130. Amphizoa insolens Lec., *Dysmathes Sahlbergii* Mann., *Josephi* Matth. ♂, D 259.—Sitkha, Vancouver, Washington, California.

HALIPLIDÆ.

131. Haliplus punctatus Aubé, *pantherinus* Aubé. C 23.—In a lake on Sitkha, Lake Superior, Canada, Ohio, New Jersey, Florida (Middle and Southern States).

DYTISCIDÆ.

132. Lacophilus decipiens Lec., 1852, *truncatus* Mann., *californicus* Mots., *fusculus* Sharp, D 73.—Island of St. George, Kenai, Washington to California, Nevada to New Mexico and Arizona, Kansas.

133. Bidessus affinis Say, *obscurellus*, *macularis* Lec., *erythrostomus* Mann., *nanus* Aubé, *nigrinus* Casey, C 30, two varieties.—Sitkha, Queen Charlotte

Island, Washington to California, Nevada to Colorado, Lake Superior region, Ohio and Michigan to Vermont, Pennsylvania to Florida; United States generally, Central America. "From Sitkha to Buenos Aires," Sharp.

134. Cœlambus impressopunctatus Schall, *nigrolineatus* ‡ Kirby, *picatus-similis* Kirby, 10-*lineatus* Mann., D 74.—Kenai, Lake Superior, northward to Lat. 55°, Canada, Massachusetts, New York, Pennsylvania, Michigan, Illinois; Siberia, Asia Minor, Europe. Variable.

135. Deronectes griseostriatus DeG., *quadristriatus* Esch., ? *catoscopium*, *interruptus*, *parallelus* Say, *prosternalis*, *suffusus* Sharp, A 98, Dp, 272.—Kadjak, Unalaschka. With these probable varieties the species extends across the northern part of the continent to Labrador and southward to Pennsylvania, Colorado and California. Arctic Siberia, Alpine and northern Europe to Lat. 69°, Lapland.

136. Hydroporus fuscipennis Schaum, *puberulus* ‖ Mann., not Lec., D 78.—Common in Kenai, Bechawaung Bay (Lake Superior); Arctic Siberia, northern Germany.

137. H. signatus Mann., D 75.—Kadjak, Canada, Illinois, New York.

138. H. tartaricus Lec., *nigellus* Mann., *geniculatus* Thoms., D 79.—Common in Kenai, Queen Charlotte Island, high mountains of Colorado, Lake Superior and Hudson Bay region; Arctic Siberia, northern Europe.

139. H. tristis Payk., *varians* Lec., *ruficapillus* Mann., *subtonsus* Lec., C 28, two varieties.—Sitkha, Queen Charlotte Island, Lake Superior, northward to York Factory (Hudson Bay), Canada, Vermont, Massachusetts, Michigan; Arctic Siberia, Kirghes Steppes, Europe.

140. H. contractulus Mann., C 27.—Sitkha.

141. H. rufinasus Mann., C 29.—Sitkha.

142. H. humeralis Aubé, A 100.—Sitkha, British Columbia.

143. H. oblitus Aubé.—Wrangel (Wickham), Middle States, Pennsylvania, Michigan, Lake Superior.

144. H. planatus Mann., D 77.—Kenai (Fort Nicholas).

145. H. truncatus Mann., D 76.—Fort Nicholas (Kenai).

146. H. oblongus Stephens, Aubé, *convideus* Lec., A 99.—Unalaschka, Vancouver, Canada, Michigan; Arctic Siberia, northern Europe to Lat. 66°.

147. Ilybius quadrimaculatus Aubé A 94, Dp, 271, two varieties.—Atkha, Kadjak, Sitkha, Oregon.

148. I. angustior Gyll., *picipes* Kirby, D 66.—Kenai, Lake Superior, northward Lat. 65°, Canada, Labrador, Kansas, Siberia, northern Europe, Lapland.

149. Agabus hypomelas Mann., A 97, Dp, 272.—Sitkha, Vancouver; var. *irregularis* Mann., D 72.—Interior of Kenai, Kadjak.

150. Agabus atratus Mann., D 68.—Mouth of the Kaknu (Kenai).

NOTE.—This is considered by Dr. Geo. H. Horn a probable variety of *tristis*, Tr. Am. Ent. Soc. x, 281.

151. A. tristis Aubé, A 95, Dp, 271.—Atkha, Unalaschka, Kadjak, Kenai, Sitkha, Lake Tahoe (California), New Mexico, Colorado, Lake Superior, Province of Quebec; Arctic Siberia; var. *dubius* Mann., A 96, Dp, 271; Unalaschka, Kadjak, Kenai, Sitkha.

152. A. semipunctatus Kirby, D 69.—Kenai, Lake Superior, Canada, Michigan, Missouri.

153. A. Lecontei Crotch, *discolor* || Lec., 1852; *phæopterus* ‡ Mann., not Kirby, D 71.—Afognak, Kenai, California; ? var. at Alamosa, on the Rio Grand, at 7600 feet.
154. A. scapularis Mann., D 25.—Sitkha, British Columbia.
155. A. anthracinus Mann., D 26, Dp, 272, two varieties.—Kenai, Sitkha, Canada, Hudson Bay, Sharpe. This species is considered by Dr. Horn as probably synonymous with *scapularis* l. c.
156. A. confinis Gyll., *bicolor* Kirby, *phæopterus* Kirby, not Mann,; *ovoideus* Lec., D 70.—Afognak, Sitkha, Lake Superior to Lat. 54°, Canada, Vermont, Michigan, Kansas, Siberia, northern Europe.
157. A. subopacus Mann., D 67.—Kadjak.
158. Rhantus divisus Aubé, A 93, Dp, 271, two varieties.—Various places in Kenai, Sitkha, Oregon.
159. Colymbetes dolobratus Payk., D 65.—Kadjak, Kenai, Hudson Bay Kamtschatka, Arctic Siberia; Lapland, Finland, Sweden, Norway. According to Dr. Regimbart, Ann. Soc. Ent. France, 1889, p. xviii, there are three other varieties: var. *Groenlandicus* Aubé, Labrador, Greenland, Iceland; var. *Drewseni* Lec., Greenland; var. *Thomsoni* Sharp, Iceland, Lapland. The European catalogue, ed. iv, has *Groenlandicus* as a true species.
160. C. obscuratus Mann., D 64, two varieties.—Kadjak. Differs from *C. Paykulli* Er. by the finer and denser transverse striolæ of the elytra.
161. Dytiscus anxius Mann., A 91.—Sitkha, Oregon, Canada, Hudson Bay.
NOTE.—This may be a variety of *circumcinctus* Ahr., with which Mannerheim compares it, a species of northern Siberia and northern Europe said by Dr. Sharp to occur on Red River [Manitoba].
162. D. parvulus? Mots., Mann.—Common on Kadjak.
163. D. dauricus Gebl., *confluens* Say, *Franklinii*, *Ooligbukii* Kirby, *diffinis* Lec., C 24, D 62, two varieties.—Unalaschka, Kadjak, the main land adjoining the peninsula of Kenai, Lake Superior region northward to Lat. 55°, Canada to Maine, Vermont, Michigan, Wisconsin, Kansas, Colorado; Kamtschatka to Dauria.
164. Acilius abbreviatus Mann., A 92, D 61.—Atkha, Kadjak, Sitkha. Mannerheim considered this a true species distinct from *semisulcatus* Aubé, Dej., of which now it is made a variety, together with *simplex* Lec., *oregonensis* Crotch and *latiusculus* Lec.; *semiuscusculus* is distributed generally throughout North America and some of the West India Islands (Crotch, Sharpe).

GYRINIDÆ.

165. Gyrinus picipes Aubé, A 101, D 80, two varieties.—Kadjak, Sitkha, Queen Charlotte Island, British Columbia to Labrador, Vermont, Michigan, Idaho, Oregon.

HYDROPHILIDÆ.

166. Helophorus angustulus Mann., D 82.—Kadjak, Kenai.
167. H. inquinatus Mann., C 118.—Sitkha, Lake Superior; var. *consimilis* Mann., D 81, two varieties.—Fort Constantine (Chtagalnk). Various places on Kenai.
168. H. auricollis Esch., A 188.—Unalaschka.

169. Ochthebius Holmbergi Maek., D 83, two vatieties.—Abundant in stagnant water on the coast of Kenai, California, Nevada, Colorado, Canada.

170. Berosus maculosus Mann., *tessellatus* || Mots. (catalogue name), D, 85.—Island of St. George, Unalaschka.

171. Hydrobius fuscipes Linn., *seriatus, insculptus, regularis* Lec., D 84.—Fort Nicolas (Kenai), Queen Charlotte Island, British America and the United States, but is not recorded in the Atlantic region southward from Virginia; Kamtschatka, Siberia, Turkestan, Europe.

172. Cercyon fimbriatus Mann., C 120, Dp, 272, four varieties.—Kadjak, under sea-drift on the coast of Edgecombe, Queen Charlotte Island, "Alaska to San Diego, Cal., under sea-weed," Horn. ? Arizona (Ulke).

173. C. lunigerus Mann., D 86, two varieties.—Kadjak, Chtagaluk, Edgecombe, under stercor. "Alaska to California, probably a sea-coast species" (Horn).

174. C. fulvipennis Mann., C 119.—Sitkha *in stercore bovino*, Wrangel. "Alaska to Washington and California" (Horn).

175. C. lateralis Marsh., *limbatus* Mann., A 189, D 87, four varieties.—Island of St. Paul, Chtagaluk, Kadjak, Kenai, Sitkha. "Coast regions of California" (Horn). Arctic Siberia, central and northern Europe to Lat. 67°.

176. C. adumbratus Mann., A 190, Dp, 272, two varieties.—Chtagaluk, Sitkha, Wrangel, Queen Charlotte Island, Vancouver, Washington.

177. Megasternum posticum Mann., C 121, two varieties.—Sitkha. "Alaska to San Francisco" (Horn), San Diego.

178. Cybocephalus? unicolor Mots., C 102, D, separat. p. 110.—Sitka.

PLATYPSYLLIDÆ.

179. Platypsyllus castoris Ritsem.—Alaska, Nebraska, Texas, Hudson Bay region; France.

SILPHIDÆ.

180. Necrophorus guttula Mots., Mann., *? auripilosus* Esch., *hecate* Bland, C 91.—Sitkha, California, Colorado.

181. N. pustulatus Herschel, *tardus* Mann., D 89.—Sitkha. "Atlantic region from the New England States to Texas" (Horn); var. *nigrita* Mann., A 168. "Middle California southward to the peninsula and Guadeloupe Island and eastward through Arizona to Texas" (Horn); var. *maritimus* Mann., A 169, three varieties, Vancouver; var. *infodiens* Mann., D 90, Unalaschka, Kadjak; var. *pollinctor* || Mann., D 88, Atkha; *labiatus* Mots. (Coleop. Amur, 1860, p. 126), Sitkha; *Melsheimeri* Kirby, and *confossor* Lec. are other varieties; *Melsheimeri* occurring in Alaska, Queen Charlotte Island, and eastward to Hudson Bay, and southward to Colorado, Oregon and California. The distribution of the species is all America north of Mexico.

182. N. vespilloides Herbst, *mortuorum* Fab., *defodiens* Mann., *pygmæus, hebes* Kirby, *pollinctor* Lec., *conservator* Walker. Variable in color, like *pustulatus*. The species extends from Alaska and Queen Charlotte Island to Nova Scotia; Kamtschatka, Siberia, countries of the Amur, China, Europe; var. *defodiens* B 10, D 91, three varieties occur in Sitkha and Kadjak; var. *mortuorum* D 92, on the Kwichpakh (Yukon).

183. Silpha lapponica Hbst., *caudata* Say, *tuberculata* Germ., *californica* Mann., *granigera* Chev., C 92.—Kenai and the adjoining main land, Stikine River, B. C., Glenora, Vancouver, all the northern parts of the continent eastward to Labrador, southward to Vermont and Michigan, and westward of the Mississippi to New Mexico; Arctic Siberia southward to the Amur, northern Europe.

184. S. trituberculata Kirby, *baicalica* Mots., *sagax* Mann., D 93.—Kenai, Hudson Bay region, Lake Baical and the upper Amur, Lapland.

185. Necrophilus hydrophiloides Mann., *? ater* Mots., A 172, D 94, two varieties.—Sitkha, Queen Charlotte Island, Vancouver, California.

186. Pelates latus Mann., C 93, two varieties.—Sitkha, Wrangel, Queen Charlotte Island, Washington.

187. Pteroloma Forstroemi Gyll.—Alaska, Arctic Siberia, Caucasia, northern Europe.

188. Sphærites glabratus Fab., *politus* Mann., B 11.—Sitkha, Queen Charlotte Island (abundantly), California; central and northern Europe.

189. Lyrosoma opacum Mann., D 95, Vega Exp. p. 66.—Islands of Afognak, Atkha and St. Paul; Behring Island, Kamtschatka.

190. Pinodytes (*Catops*) cryptophagoides Mann., C 95.—Sitkha, Queen Charlotte Island, District of Columbia (Ulke), St. Vincent Monastery, West Moreland County, Pennsylvania (Schmitt).

191. Catoptrichus (*Catops*) Frankenhaeuseri Mann., C 94.—Sitkha, in a cadaver and in putrid fungi; Queen Charlotte Island.

192. Choleva egena Horn, Tr. Am. Ent. Soc. viii, 256.—Alaska, Wrangel.

193. C. luridipennis Mann., D 97.—Kenai, Glenora, B. C., Queen Charlotte Island. "Alaska to Oregon, and the New England States" (Horn).

194. C. basillaris Say, *spencianus* Kirby, *cadaverinus* Mann., A 173, D 98, two varieties.—Afognak, Kenai, Sitkha, British Columbia, California, Nevada to Colorado, Lake Superior region northward to Lat. 50°; Canada; White Mountains, N. H., and southward to the Middle States; var. *brunnipennis* Mann., D 96, Kenai, common.

195. Colon marginicolle Mann., D 99.—Kenai, "Vancouver, Lake Superior, Michigan, Pennsylvania" (Horn).

196. C. clavatum Mann., D 100.—Kenai, "Vancouver, California, Nevada, Colorado" (Horn).

197. C. inerme Mann., C 96.—Sitkha. "California, Nevada" (Horn).

198. Hydnobius punctatostriatus ‡ Mann., D 143.—Kenai, in the bark of trees.

Note.—Dr. Horn, Tr. Am. Ent. Soc. viii, 228, says this is probably *substriatus*, *curvidens* Lec.; a species distributed from Canada to Nova Scotia, New York, Michigan, Colorado.

199. Anisotoma punctatostriata Kirby, *indistincta* Lec., *læta* Mann., D 144.—Sitkha, Vancouver, Lake Superior north to 65°; Canada, Colorado.

200.—A. curvator Mann., Lec., D 145.—Kenai, Washington, California.

201. A. lateritia Mann., C 122.—Sitkha.

Note.—Examples taken on the Stikine River and at Glenora, B. C., are doubtfully referred to this species by Mr. Wickham.

202. Agathidium concinnum Mann., C 175, two varieties.—Sitkha, in grass and under pine bark, Queen Charlotte Island, California, Nevada, Col-

orado; var. *effluens* Mann., D 116, two varieties.—Kenai, common under the bark of trees in the interior.

203. A. rotundulum Mann., C 176.—Sitkha, Queen Charlotte Island.

204. A. angulare Mann., C 174.—Sitkha, Colorado (Horn).

205. A. pulchrum Lec., February, 1853; *mandibulatum* Mann., 1853, D 147.—Sitkha, Queen Charlotte Island, California, Kentucky, New Hampshire (White Mountains); many color variations.

206. Empelus (*Litochrus*) brunnipennis Mann., C 173.—Sitkha, in fungi. Mr. T. L. Casey, An. N. Y. Acad. Sci. v, 89, refers this species to *Choleva*, assigning no reason.

207. Calyptomerus (*Clambus*) oblongulus Mann., D 148, two varieties.—Frequent in Kenai under the bark of fallen timber, Veta Pass (Colorado).

SCYDMÆNIDÆ.

208. Scydmænus biformis Maek., C 89.—Sitkha, Hunter's Bay, Queen Charlotte Island. "Closely related to *claripes* Say" (Macklin).

209. S. californicus Mots., C 88.—Sitkha, California.

210. Eutheia scitula Mack., C 90.—Sitkha, Lake Superior.

PSELAPHIDÆ.

211. Tychus pulverulus Lec., An. Lyc. Nat. Hist. N. Y., v, 244.—Wrangel (Wickham), San Jose, Cal., with ants.

212. Batrisus zephyrinus Casey, Bull. Cal. Acad. Sci. ii, part 6, p. 175.—Port Chester, Nevada (Reno).

213. Bryaxis albionica Mots., C 178.—Sitkha, Wrangel, Queen Charlotte Island, British Columbia, California, Colorado.

214. Faronus (*Euplectus*) parviceps Macklin, C 180.—Sitkha, Wrangel, Queen Charlotte Island, British Columbia.

215. Trimium clavicorne Mack., C 179.—Sitkha.

STAPHYLINIDÆ.

NOTE.—The species placed in the genera *Colpodota*, *Liogluta* and *Atheta* of the European catalogue, belong to *Homalota* in its undifferentiated state.

216. Colpodota sordida Marsh. *lividipennis* Mann., Brach. 70.—"Sitkha to Texas" (Fauvel). Buffalo, N. Y.; Cincinnati, O.; Louisiana, Pennsylvania, Michigan, Massachusetts, Canada, Lake Superior, Kansas, Colorado, Urugnay, Chili, Azores, Madeira, Mediterranean countries, Caucasia, Persia China, Japan, Australia, Cape of Good Hope (Fauvel).

217. C. fungi Grav.—Sitkha, Stikine River, B. C., Queen Charlotte Island, Nevada, Colorado, Massachusetts. "Cape Verd, Canaries, Madeira, Europe, Mediterranean countries, Caucasia, Persia, Siberia, East Indies, New Zealand" (Fauvel).

218. Liogluta graminicola Grav., *granulata* Mann., *pacifica* Mots., B 1. Dp. 272.—Unalaschka, Kadjak, Chtagaluk, Queen Charlotte Island, Arctic, eastern and western Siberia, Europe.

219. Atheta picipennis Mann., *subrugosa* Kiesw., A 103.—Sitkha, Queen Charlotte Island, California, Alleghanies, White Mountains, Europe, Caucasia, northern Persia; western, eastern and Arctic Siberia.

220. A. aquatica Thoms.—Sitkha; Europe (Fauvel).

221. A. opacipennis Mann.—Wrangel. This and the following three species have been named for Mr. Wickham by Mr. A. Fauvel.
222. A. captata Fauvel (ms.).—Wrangel.
223. P. ingrata Fauvel (ms.).—Wrangel.
224. A. quadrillum Fauvel (ms.).—Wrangel.
225. Homalota maritima Mann., A 102.—Sitkha, Queen Charlotte Island.
226. H. lævicollis Maek., C 33.—Sitkha, variable in color.
227. H. cursor Maek., C 34.—Sitkha, variable in color.
228. H. nitens Maek., C 35.—Sitkha, under bark.
229. H. mœsta Maek., C 36.—Sitkha.
230. H. pratensis Maek., C 37.—Sitkha, in grass.
231. H. geniculata Maek., C 38.—Island of Edgecombe under sea trash, Queen Charlotte Island.
232. H. planaris Maek., C 39.—Sitkha, Wrangel; in wet places.
233. H. breviuscula Maek., C 40.—Sitkha.
234. H. comparabilis Maek., D 103.—Kadjak, variable.
235. H. litoralis Maek., D 104.—Kadjak, Queen Charlotte Island.
236. H. vasta Maek., D. 106.—Sitkha.
237. H. fucicola Maek., *Tachyusa fucicola* Maek., C 32, D 105.—Kadjak, Edgecombe, on the ocean beach.
238. Myrmedonia angularis Maek., D 102.—Interior and coast of Kenai.
239. Aleochara bimaculata Grav., D 108.—Afognak, New Mexico, Colorado, Iowa, Canada, New York, Pennsylvania, Louisiana.
240. A. castaneipennis Mann., A 104, two varieties.—Common in Sitkha, Queen Charlotte Island.
241. A. sulcicollis Mann., A 105, Dp, 272.—Kadjak, Afognak, Sitkha, Wrangel, Queen Charlotte Island.
242. A. cognata Maek., C 42.—Sitkha, Queen Charlotte Island.
243. A. californica Fauvel, *in litt* to Wickham.—Wrangel.
244. Oxypoda irrasa Maek., D 107.—Interior of Kenai, Sitkha.
245. Myrmecopora phytosina Fauvel, *in litt* to Wickham.—Wrangel, on the beach.

NOTE.—*Liparocephalus brevipennis* Maek.; see No. 277.

246. Bolitochara notata Maek., C 31.—Sitkha, Queen Charlotte Island.

NOTE.—Mr. Wickham took examples at Wrangel supposed to belong to this genus.

247. Eudera (*Gyrophæna*) geniculata Maek., D 109.—Bay of Nutschek in Chtagaluk.
248. Quedius erythrogaster Mann., C 53, two varieties.—Sitkha. Queen Charlotte Island, California, Nevada.

248*a*. Q. melanocephalus Maek., C 54.—Tschishlkhath, on the main land adjoining the peninsula of Kenai.

248*b*. Q. fulgidus Fab.—With this Dr. Horn unites the above forms, and also *iracundus* Say, *groenlandicus* Zett., *silvicola* Casey and *mesomelinus* Marsh. Thus united the distribution is: All America from Discovery Bay, Lat. 82° 30′ to Greenland, and southward to Louisiana and California, Peru; Siberia, northern India, Asia Minor, Europe, Barbary, Java, Australia, Tasmania, New Zealand, etc.; see Tr. Am. Ent. Soc. vii, 159; Revue Entomol. viii, 112.

249. **Q. sublimbatus** Maek., D 121; Vega Exp. 63, two varieties.—Kadjak, Queen Charlotte Island, Fort Simpson (McKenzie River), Lake Superior region, Michigan, Blanc Sablon (Hudson Strait); Behring Island, eastern Siberia.

250. **Q. capucinus** Grav., *pediculus* Nord., *inversus* Say, *bardus* Mels., *utcr* Zieg., *marginalis* Maek.—Port Chester, Queen Charlotte Island. As a whole, this species is distributed from Alaska to southern California, westward to Canada, and southward to Georgia; var. *pediculus* Nord., A 119, Dp, 227.—Kadjak, Unalaschka, frequently inhabiting the oily, greasy heads of the Aleuts; var. *marginalis* Maeklin C 56; Sitkha, in dead crow.

251. **Q. lævigatus** Gyll., *plagiatus*, *longipennis* Mann., *rufipennis* Maek.—Wrangel, Glenora, B. C., Alaska to Oregon, California, Nevada, Colorado, Kansas, Illinois, Michigan, Pennsylvania to Georgia; eastern Siberia, mountainous and northern Europe; var. *plagiatus* Mann. A 118, C 52, two varieties, Sitkha; var. *longipennis* Mann., B 4, Dp, 272, Unalaschka, Kenai; var. *rufipennis* Maek., D 119, peninsula of Kenai.

252. **Q. limbifer** Horn, Tr. Am. Ent. Soc. vii, 162.—"California (Gilroy, Crystal Springs and Mariposa)." Mr. Wickham took some examples at Wrangel which he supposed might be a variety of this species. Glenora, B. C.

253. **Q. molochinus** Grav., A 121, Dp, 272.—Atkha, Chtagaluk, Kenai, Sitkha, Vancouver. All North America to Mexico; Siberia, Caucasia, Mediterranean countries, all Europe.

254. **Q. fulvicollis** Steph., *hyperboreus* Er., A 122.—Unalaschka, Glenora, B. C., Vancouver to Maine and northward, mountainous Colorado; Siberia, (Baical), mountainous and northern Europe.

255. **Q. brunnipennis** Mann., *ænescens* Maek.—Alaska, Vancouver, Lake Superior, New Jersey sea-coast (Brigantine); var. *brunnipennis* A 120, Sitkha; var. *ænescens* C 55, D 120, three varieties, the islands Kadjak, Edgecombe, and Sitkha.

256. **Thinopinus pictus** Lec., *Trichocanthus variegatus* Mots., Maek., D 116.—Continent of boreal America [Russian] without locality, Vancouver. Pacific sea-coast to San Diego.

257. **Creophilus maxillosus** Linn., *balteatus* DeG., var. *ciliaris* Steph., var. *arcticus* Er., var. *fulvago* Mots., var. *orientalis* Mots., var. *villosus* Grav. var. *bicinctus* Mann., *fasciatus* Lap.—Throughout North America, Mexico, Guatemala, the Antilles, islands of the Atlantic, all Europe and Asia to Japan, north Africa to Abyssinia; var. *bicinctus* A 113, Dp, 272, Atkha, Unalaschka, Kadjak, Kenai, Sitkha; occurs everywhere with *villosus*, which is the American form.

258. **Hadrotus crassus** Mann., B 3, C 49, Dp, 272, two varieties.—St. George Island, Unalaschka, Kadjak, Sitkha, Queen Charlotte Island, Vancouver, Pacific sea-coast to California.

259. **Staphylinus tarsalis** Mann., *submetallicus* Lec., A 114.—Sitkha, California Arizona.

260. **Philonthus politus** Linn., [Maek. Kirby] *æneus* Rossi, *mandibularis* Kirby, *Harrisi* Mels., *angulicollis* Mots.—Wrangel, Queen Charlotte Island, Nova Scotia to Louisiana, nearly all North America; all Siberia, Amur countries and Europe; nearly cosmopolite.

261. **P. Siegwaldi** Mann., A 116, Dp, 172.—Kadjak, Afognak, Chtagaluk, Kenai, Sitkha, Wrangel, Stikine River, B. C., southward to northern California.

262. P. nigritulus Grav., *aterrimus* Grav., A 117.—Kadjak, Vancouver, nearly all North America; all Siberia, Japan, Turkestan, Persia, Caucasia, Asia Minor, Mediterranean countries, Europe, the islands of the Atlantic, Chili, New Zealand, Australia, etc.; nearly cosmopolite.

263. P. picipennis Maek., C 50 —Sitkha, "California, Massachusetts" (Fauvel). This is united by Dr. Horn, in his monograph, to *nigritulus;* but Mr. A. Fauvel, on the authority of a type, says it is a distinct species (Rev. Ent. viii, 116).

264. P. albionicus Mann., A 117.—"Alaska, Vancouver, Washington, Arizona" (Horn).

265. Cafius canescens Maek., C 51, Dp, 272.—Afognak, island of Edgecombe, Queen Charlotte Island, Pacific sea-coast to southern California.

266. C. femoralis Maek., D 118.—Kadjak, Queen Charlotte Island, Pacific sea-coast.

267. Othius californicus Mann., A 111.—Alaska (LeConte), California.

268. Baptolinus (*Othius*) macrocephalus Nord., A 110, C 48, Dp, 272, two varieties.—Kenai, Chtagaluk, Sitkha, Wrangel, Prince of Wales Island, Stikine River, B. C., Queen Charlotte Island, ? Canada, ? New Hampshire. The examples from Canada and New Hampshire not having the sixth abdominal segment of the ♂ emarginate below, as required by Mannerheim's description, may belong to another species.

269. Stenus juno Fab.—Wrangel, Vancouver, Washington, Vermont to South Carolina, Texas; Siberia, Caucasia, Europe, Algeria.

270. S. montivagus Heer., *brevipennis* Maek., *pterobrachys* Gem. and Har., C 61.—Sitkha, Wrangel, some of the mountains of southern Europe, Caucasia. "This synonymy is verified by the types of Maeklin" (Fauvel).

271. S. maritimus Mots., C 57.—Sitkha, Wrangel, Vancouver.

272. S. canaliculatus Gyll., *congener* Maek., D 124.—Kadjak, Queen Charlotte Island, Lake Superior, Canada, Massachusetts; Siberia, Europe, Algeria. "The synonymy is verified by the type of Maeklin" (Fauvel).

273. S. adspector Maek., C 58.—Sitkha, Wrangel, Yes Yes Bay, Queen Charlotte Island.

274. S. parallelopipedus Maek.—Sitkha, under bark; *S. insularis* ‖ Sahlb., Vega Exp. p. 55, is considered by Mr. I. Sahlberg as very probably synonymous. It occurred on the Japanese island, Hiro Sami.

275. S. cariniceps Maek., C 60.—Sitkha.

276. S. immarginatus Maek., D.—The island of Kadjak.

NOTE.—Three species, not yet identified, were taken on Wrangel by Mr. Wickham.

277. Liparocephalus brevipennis Maek., D 122.—Fort Constantine on the island of Chtagaluk under sea trash, main land opposite Wrangel; abundant on Queen Charlotte Island. *L. cordicollis* Lec., from Cape Mendocino, California, so far as the description goes, agrees in every respect with examples of *brevipennis*, the individuals of which vary much in color and sculpture. The genus, according to Mr. Casey, belongs in the Aleocharini near *Phytosus*.

278. Tachinus maculicollis Maek., C 46.—Abundant in Sitkha, Queen Charlotte Island, Vancouver.

279. T. rufipes DeG., *pallus* Grav.—Sitkha; Arctic, eastern and western Siberia, Dauria, Caucasia, Syria, Europe (Fauvel).

280. T. nigricornis Mann. ♀, Maek. ♂, A 106, D 110.—Sitkha, Wrangel, Stikine River, B. C., Vancouver.

281. T. pallipes Grav., *frigidus* Er., two varieties, *propinquus* Mann., two varieties, A 107, C 144, D 112.—Unalaschka, Afognak, Kenai, Sitkha, California, Iowa, Canada to Virginia; central and northern Europe.

282. T. arcticus Mots., Col. Amur, p. 121, Vega Exp. pp. 28 and 53.—Coast of Behring Strait both on the American and Asiatic sides, all Arctic Siberia.

283. T. Crotchii Horn.—Prince of Wales, Vancouver.

284. T. debilis Horn.—Port Chester, Vancouver, California.

285. T. instabilis Maek., *nigricornis* ‡ Maek., C 43, D 111, three varieties.—Kadjak, California.

286. T. apterus Maek., D 113.—Island of St. George. Mr. Fauvel considers this and the two preceding valid species.

287. T. basalis Er., *circumcinctus* Maek., C 45, Dp. 272.—Kenai, common in Sitkha, Vancouver, Kansas, Michigan, Canada.

288. T. elongatus Gyll., A 109, two varieties.—Unalaschka, Saguenay [river, Canada] (Fauvel); eastern Siberia, Bokhara, Caucasia, Europe.

289. Boletobius cingulatus Mann., Brach. 64, 2.—Alaska, Queen Charlotte Island, British Columbia, Oregon, Canada to Virginia; Caucasia, Europe.

290. B. pœcillus Mann., C 47, two varieties.—Sitkha, Vancouver.

NOTE.—An example taken at Wrangel is referred doubtfully to *B. dimidiatus* Er. by Mr. Wickham.

291. B. biseriatus Mann., B 2.—Sitkha. According to Dr. Horn this is perhaps *cinctocollis* Say, which extends from British Columbia to California and Canada and southward to Virginia.

292. Mycetoporus insignis Maek., D 114.—Afognak.

293. M. nigrans Maek., D 115.—Interior of Kenai.

294. Olisthærus megacephalus Zett., D 126.—Interior of Kenai, California, Lake Superior region, Canada; Arctic and eastern Siberia, Lapland, Sweden, Hungary.

295. Bledius longipennis Maek., C 62.—Sitkha, British Columbia.

296. B. albonotatus Maek., D 125.—Peninsula of Kenai. Closely related to *ornatus* Lec. Horn.

297. Oxytelus laqueatus Marsh., *luteipennis* Er., *fuscipennis* Mann., not Lec., A 123, Dp. 272.—Chtagalnk, Sitkha, Wrangel and main land opposite, Prince of Wales Island, Queen Charlotte Island, Vancouver, southward to Guatemala; Siberia, Caucasia, Europe.

298. Ancyrophorus biimpressus Maek., C 63, two varieties.—Sitkha.

299. Syntomium confragosum Maek.—Sitkha; Europe (Pyrenees).

300. Porrhodites fenestralis Zett., *Deliphrum brevicolle* Maek., C 66, D 133.—Abundant in the interior of Kenai, Sitkha, Stikine River, B. C., British Columbia, mountainous Colorado, Lake Superior, Hudson Bay; northern Siberia and Europe.

301. Lesteva fusconigra Mots., D 127.—Unalaschka, Veta Pass (Colorado) at 9400 to 11,000 feet.

302. Acidota quadrata Zett., *Frankenhauseri* Maek., D 128.—Interior of Kenai, Colorado, Lake Superior, Mt. Washington and White Mountains, N. H.; Arctic Siberia, Lapland.

303. Amphichroum (*Arpedium*) testaceum Mann., var. *maculicolle* Mann. *melanocephalum* Mots., A 125, A 126.—Sitkha, Queen Charlotte Island, British Columbia, California.

304. Tanyrhinus singularis Mann., C 133, two varieties.—Sitkha.
305. Larithmæum subcostatum Maek., C 67.—Sitkha, Queen Charlotte Island
306. L. fimetarium Er., A 128.—Sitkha, Wrangel, Queen Charlotte Island.
307. Olophrum marginatum Kirby, Maeklin, D 132, three varieties.—Interior of Kenai and borders of the Kaknu, Colorado, Lake Superior, Michigan.
308. O. convexum Maek., D 131.—Interior of Kenai.
309. O. parvulum Maek., D 130.—At Lake Thkujabna (Kenai).
310. O. fuscum Grav., *latum* Maek., *laticolle* Sahlb., D 129, three varieties.—St. George Island; at Fort Nicolas and on the river Tschuniten in Kenai; northern Siberia, Caucasia, temperate and boreal Europe; synonymy by Fauvel from Maeklin's type.
311. Acrulia (*omalium*) tumidula Maek., D 138.—Afognak, Sitkha, Queen Charlotte Island.
312. Homalium strigipenne Maek., C 68, D 134, five varieties.—Kadjak, Sitkha, Washington to southern California; eastern Siberia, the Amur countries.
313. H. longulum Maek., C 73.—Sitkha, California.
314. H. lapponicum Zett., *planipenne* Maek., *argus* Lec.—Common in the interior of Kenai, Sitkha, Colorado, Lake Superior, Michigan, Canada, Massachusetts; boreal and mountainous Europe, Caucasia.
315. H. pusillum Grav., *læsicolle* Maek., C 71.—Abundant in Sitkha under bark, Prince of Wales Island, Glenora, B. C., British Columbia, California, Nevada, Colorado, New York, Madeira, Algieria, Europe, Caucasia.
316. H. plagiatum Mann., A 127.—Sitkha; Mariposa, California.
317. H. exsculptum Maek., C 70.—Sitkha, under pine bark.
318. H. foraminosum Maeklin, C 69, *laticolle* Kraatz, *clavicorne* Mots., *lagopinum* Sahlb., *brevicolle* Thoms.—Sitkha, Wrangel, Queen Charlotte Island, Colorado, Michigan, Lake Superior; eastern Siberia, central and northern Europe.
319. H. humile Maek., D 135.—Interior of Kenai.
320. H. flavipenne Maek., D 136.—Sitkha.
321. Anthobium pothos Mann., ♁ *dimidiatum* Mels., A 129.—Sitkha, main land off Wrangel, Yes Yes Bay, Stikine River, B. C., Oregon, Lake Superior, Michigan, Pennsylvania, Mount Washington, N. H.
322. A. rugulosum Maek., D 138.—Sitkha.
323. A. (*Homolium*) segmentarium Maek , C 72.—Sitkha.
324. Micrædus (*Anthophagus*) laticollis Mann., A 124, C 65, two varieties.—Sitkha.
325. Protinus limbatus Maek., C 75, three varieties.—Abundant on Sitkha in putrid fungi. British Columbia, New Hampshire, middle and southern Europe, Caucasia.
326. P. Maeklini Fauv., Rev. Ent. viii, 128.—Sitkha, Nevada, California.
327. P. basalis Maek., C 76, Sitkha.

Basalis ‡ Hubbard and Schwarz, Proc. Am. Phil. Soc. xvii, 632, is *atomarius* Er. (Fauvel).

NOTE.—An undetermined species of *Protinus* occurred at Wrangel (Wickham).

328. Megarthrus pictus Mots., C 77.—Sitkha, Queen Charlotte Island.
329. M. sinuaticollis Lacord, *angulicollis* Maek., C 79.—Sitkha, Colorado, West Virginia, Georgia; Siberia, Caucasia, Europe; synonymy of Fauvel from Maeklin's type.
330. M. atratus Maek., C 78.—Sitkha, Wrangel, Queen Charlotte Island.

331. Siagonum (*Prognatha*) punctatum Lec., Proc. Acad. Sci. Phil. 1866, 376. —Wrangel, Colorado, New Mexico, Arizona, Canada, New York, Pennsylvania, North Carolina.

332. Micropeplus laticollis Maek., D 140, two varieties.—Common in the interior of Kenai, Queen Charlotte Island, Colorado, Lake Superior, New Hampshire.

333. M. punctatus Lec., 1860; *costatus* Maek., 1852 (not Lec. Agass. Lake Sup. 1850, 221), C 80.—Sitkha, California.

334. M. brunneus Maek., C 81.—Sitkha, in fungi on trees.

335. M. tesserula Curtis, *costatus* Lec., *costipennis* Maek., D 141.—The interior of Kenai, California, Michigan, Lake Superior, Canada; Arctic and eastern Siberia, Caucasia, Syria, Europe.

TRICHOPTERYGIDÆ.

336. Ptilium columbianum Matth.—Common at Wrangel under carrion; British Columbia, California.

337. P. Collani Maek., *canadense* Lec. D 142.—Sitkha, Wrangel, California, Louisiana, Michigan, Canada. *P. truncatum* Casey, from Philadelphia, Pa., if not identical, seems closely related.

338. Ptenidium pullum Maek., C 113.—Sitkha, Wrangel, Queen Charlotte Island, ? California (Matthews).

339. Trichopteryx parallela Mots., Bul. Mosc. 1868, pt. 2, 176, *longipennis* Casey.—Wrangel, Michigan; Fairmount Park, Philadelphia, Pa.; District of Columbia.

340. T. parallelopipeda Matth., Cist. Ent. 2, 175.—Wrangel, on underside of logs on the beach, British Columbia.

341. T. sitkaensis Mots., Bul. Mosc. 1845, p. 526, C 112.—Sitkha.

342. T. insularis Maek., C 111.—Abundant in grassy places on Sitkha. Mr. Matthews united this with *sitkaensis*, but it has since been restored by other authors.

343.—T. laticollis Maek., C 110.—Sitkha, ? California (Matthews).

NOTE.—An undetermined species occurred under logs at Wrangel (Wickham).

COCCINELLIDÆ.

344. Hippodamia 13-punctata Linn., *tibialis* Say, D 255, two varieties.—Common on Kenai, crosses to Hudson Bay, all America north of Mexico, the Antilles; Siberia, central Asia, Caucasia, Europe.

345. H. parenthesis Say, *tridens* Kirby, *lunatomaculata* Mots., D 256, two varieties.—The affluents of the Tschunuktnu in Kenai, nearly all North America to Mexico. *H. amœna* Fald., 1835, of eastern Siberia, seems to be a melanotic variety (Crotch).

346. Coccinella trifasciata Linn., *cimicifugæ* Pallas, var. *juliana* Muls. (*barda* Lec.), var. *Eugenii* Muls., var. *subversa* Lec., D 258.—Kenai, Vancouver to Hudson Bay and southward to Michigan, Colorado, New Mexico, Washington to California; Kamtschatka through northern Siberia and Europe to Lapland.

347. C. novemnotata Hbst. var. *franciscana* Muls. (elytra spotless).—Wrangel, the Rocky Mountain region to New Mexico, Canada to New Brunswick, the Atlantic region to Mexico, Guatemala.

348. C. transversoguttata Fald., *5-notata* Kirby, *ephippiata* Zett., *nugatoria*, *Sedakovii*, *9-stigma* Muls., *californica* Mann., C 177.—The sources of the Kaknu on the continent adjoining Kenai, across the continent to Hudson Bay and Greenland, southward to Michigan and Kansas; the Rocky Mountain and Pacific regions to mountainous Mexico; eastern Siberia, Japan, northern China, Dauria, Lapland.

349. C. nivicola Muls., *Whitii* Muls., Sitkha, Kamtschatka, Arctic Siberia, Lake Baical, the Amur. Crotch says this and *monticola* Muls., *lacustris* Lec., are identical. It occurs in Vancouver, Oregon to Colorado and N. Mexico, Kansas, Michigan, Lake Superior, Canada: *nivicola* precedes *monticola*.

350. Harmonia 12-maculata Gebler, *incarnata* Kirby, D 257.—Kenai, Hudson Bay, Mt. Washington, N. H., Michigan, Lake Superior; Kamtschatka, eastern Siberia, Dauria.

COLYDIIDÆ.

351. Rhagodera (*Peltastica*) tuberculata Mann., A 269, C 98, two varieties.—Sitkha under pine bark; Oregon, California, Arizona.

352. Murmidius ovalis Beck., *Certhocerus advena* Schüp, A 187.—Sitkha, imported in merchandise; has occurred in many places in the United States in foreign nuts, mouldy straw, etc.; Europe, Japan. Probably of African origin (Fauvel).

CUCUJIDÆ.

353. Silvanus surinamensis Linn., *sexdentatus* Fab., A 270.—Sitkha, imported in rice. Cosmopolite.

354. Nausibius clavicornis Kug., *dentatus* Marsh., C 162.—Sitkha, imported in sugar. Cosmopolite.

355. Pediacus fuscus Er., *planus* Lec., var. *subcarinatus* Mann., C 163, D 156, two varieties.—The affluents of the Tschunuktnu in Kenai and the sources of the Kaknu on the main land, Stikine River, B. C., Vancouver to Hudson Bay and southward to Kichigan, Nebraska, Nevada, Colorado and New Mexico; the countries of the Amur, central and northern Europe.

356. Cucujus puniceus Mann., A 275.—Sitkha, Wrangel, Queen Charlotte Island, Vancouver, British Columbia, Washington, Oregon, California, Idaho, Nevada. The Pacific slope variety of *clavipes* Fab., which occurs widely in the Atlantic district.

357. Læmophlœus longicornis Mann., A 276.—Sitkha. Supposed by some authors to be identical with, or closely allied to, *L. pusillus* Schon., *puberulus* Lec., a cosmopolite species which has occurred in California, Louisiana, South Carolina and Massachusetts.

358. Trogosita pusillima Mann., A 274.—Sitkha. Supposed to be a *Læmophlœus*.

359. Dendrophagus cygnæi Mann., 1846; *glaber* Lec., 1850, B 14.—Sitkha; var. *americanus* Mann., D 157, Kenai. Mannerheim compares both forms with the European and Siberian *crenatus* Payk., giving the differential characters; still, they are probably varieties. As a whole, the species extends from Queen Charlotte Island and Vancouver to Lake Superior, Michigan, Canada, New York, Elk and Allegheny Counties in Pennsylvania, and through the Rocky Mountains to New Mexico.

NOTE.—Var. *Germari* Mann., cited by Mr. Casey, in error, Tr. Am. Ent. Soc. xi, 109, and inadvertently inserted in the Catalogue, is a *Donacia*.

360. **Brontes truncatus** Mots., C 161.—Sitkha, Vancouver, British Columbia to northern California. This is considered now to be a variety of *B. dubius* Fab., a species which occurs abundantly throughout the Atlantic district.

CRYPTOPHAGIDÆ.

361. **Antherophagus suturalis** Mack., D 158.—Interior of Kenai.
362. **Henoticus** (*Paramecosoma*) **serratus** Gyll., *denticulatus* Lec., D 162.—Interior of Kenai, Stikine River, B. C., Queen Charlotte Island, British Columbia to Canada and New Hampshire, southward to Virginia, Colorado, southern California; the Amur, Caucasia, Europe.
363. **Cryptophagus 8-dentatus** Mack., C 106.—Sitkha, in fungi.
364. **C. 4-dentatus** Mann., A 179.—Sitkha.
365. **C. bidentatus** Mack., D 160.—Interior of Kenai.
366. **C. lapponicus** Gyll. (not Thoms., not Reitter), *beringensis* Sahlb., Vega Exp. pp. 29 and 54.—Port Clarence; the opposite Asiatic coast, Finland, Lapland.
367. **C. tuberculosus** Mack., C 107.—Sitkha.
368. **C. 4-hamatus** Mack., D 159.—Interior of Kenai.
369. **C. punctatissimus** Mack., D 161.—Interior of Kenai.
370. **Cænoscelis ferruginea** Sahlb., *testacea* Zimm., D 163.—Interior of Kenai, here in Pennsylvania, South Carolina; eastern Siberia, Caucasia, Europe.
371. **Atomaria vespertina** Mack., D 164.—Interior of Kenai.
372. **A. planulata** Mack., D 165,—Sitkha, Queen Charlotte Island.
373. **A. fuscicollis** Mann., *umbrina* Er., *plicicollis* Mack., C 108.—Sitkha, California; Europe, Caucasia.
374. **A. kamtschatika** Mots., D 166, three varieties.—Kadjak, Kamtschatka, eastern Siberia,
375. **A. fulvipennis** Mann., B 13, Dp. 272.—Unalaschka, Kadjak, Chtagaluk, Kenai.
376. **A. lepidula** Mack., C 109.—Sitkha.

DERMESTIDÆ.

377. **Dermestes vulpinus** Fab., var. *lupinus* Mann., A 180 and 181.—Sitkha. Cosmopolite. *Lupinus* is described from California.
378. **Perimegatoma cylindricum** Kirby, var. *Attagenus angularis* Mann., D 178.—Kenai under bark of *Populus;* Oregon, California, Alberta, Idaho, Colorado; four varieties.

NITIDULIDÆ.

379. **Carpophilus hemipterus** Linn., *bimaculatus* Oliv., Mels., *flexuosus* Payk., A 174, C 100.—Sitkha, probably imported in merchandise from Europe; North America generally. Nearly cosmopolite.
380. **C. dimidiatus** Fab., *mutilatus* Er., *luridus* Murr., C 101.—Sitkha; probably imported there, as Dr. Horn (Trans. Am. Ent. Soc. vii, 278) says it occurs in our country everywhere, except on the Pacific coast. Nearly cosmopolite.
381. **Epuræa ambigua** Mann., A 177.—Sitkha to California.

382. E. terminalis Mann., Bul. Mosc. 1843, p. 95; *immunda* Er., var. *infuscata* Maek., var. *flavomaculata* Maek., D 152 and 154.—The color variable; abundant in Kenai in logs. "Alaska to Massachusetts" (Horn); central and northern Europe to Lat. 68°.
383. E. adumbrata Mann., C 103.—Sitkha, not rare under pine bark.
384. E. linearis Maek., D 153.—Interior of Kenai, British Columbia, mountainous Colorado and New Mexico.
385. E. truncatella Mann., var. *nigra* Maek., *? boreella* ‡ Lec., B 12, C 104, D 151, Dp, 272, variable in color.—Kadjak, Chtagaluk, common in the interior of Kenai, and in Sitkha under pine bark. Prince of Wales Island, Queen Charlotte Island, British Columbia to Canada, Washington to California, Colorado and New Mexico.
386. E. planulata Er., C 105, D 150, five varieties.—Kadjak, interior of Kenai, Sitkha.
387. E. æstiva Linn., *convexiuscula* Mann., A 176.—Sitkha, Canada, Michigan, mountains of Pennsylvania, North Carolina, Colorado and New Mexico; Siberia, Europe.
388. Ips vittatus Say, *Dejeani* Kirby, C 99, Dp, 272.—Kadjak, Kenai, Sitkha to Canada; Washington, Oregon, California, New Mexico, Colorado, Utah.
389. Rhizophagus scalpturatus Mann., C 161.—Sitkha, Queen Charlotte Island, Vancouver, Nevada, Colorado, New York.
390. R. dimidiatus Mann., A 268, C 160, Dp, 272, four varieties.—Afognak, Chtagaluk, Kenai, Sitkha, under pine bark, Lake Superior, northern Michigan, Mt. Washington, N. H., Colorado, New Mexico.
391. R. minutus Mann., D 155.—Interior of Kenai under the bark of *Populus;* Oregon, Canada, Michigan.

LATRIDIIDÆ.

392. Latridius protensicollis Mann., A 266, Dp, 272.—Kadjak, Sitkha, Wrangel.
393. L. quadricollis Mann., A 265.—Sitkha.
394. L. sobrinus Mann., C 159, Dp, 272.—Kadjak, Sitkha. This and *quadricollis* have been united with *protensicollis*, but the descriptions seemingly indicate valid species.
395. L. minutus Linn., Mann., *rugicollis* Mann. (Germ. Zeitsch. v, 77), *reflexus* Lec., D 175.—Various places in Kenai, nearly all North America; northern Asia, Europe. Cosmopolite.
396. L. consimilis Mann., *parallelocollis* Mann., D 176.—Frequent in Kenai; Europe (temperate and northern), Lake Baical in Siberia.
397. L. cordicollis Mann., A 267.—Sitkha.
398. L. cinnamopterus Mann., D 171.—Kenai.
399. L. strangulatus Mann., D 174.—Frequent in Kenai,
400. L. curtulus Mann., D 177.—Sitkha.
401. Coninomus constrictus Gyll., *incisus* Mann., *sculptilis* Lec., D 173.—Kenai, Illinois, Michigan, eastern Siberia, Europe.
402. Corticaria fulvipennis Mann., *costicollis* Lec., D 172.—Kenai, California.
403. C. spinulosa Mann., C 158.—Sitkha.
404. C. canaliculata Mann., D 167.—Frequent in Kenai.
405. C. orbicollis Mann., D 168.—Kenai.

406. C. ferruginea Gyll., *fenestralis* Auct., *denticulata* || Kirby, *Kirbyi* Lec., *deleta* Mann., D 169, two varieties.—Various places in Kenai, Sitkha to Hudson Bay, New York, Michigan, Florida, Colorado; Siberia, Dauria, Europe.

407. C. exigua Mann., D 170.—Frequent in Kenai.

TROGOSITIDÆ.

408. Tenebrioides mauritanica Linn., A 173, two varieties.—Sitkha, imported in cereals. Cosmopolite.

409. Peltis Pippingskoeldii Mann., C 97.—Sitkha, in tree fungus; Vancouver, Oregon, Nevada, Colorado.

DERODONTIDÆ.

410. Derodontus (*corticara*) trisignata Mann., C 157.—Abundant in Sitkha in in tree fungus, Vancouver.

411. Peltastica tuberculata Mann., C 98, two varieties.—Sitkha, Queen Charlotte Island, Vancouver, Washington, Oregon. *P. Reitteri* Lewis, Japan, seems to be a variety (Horn).

BYRRHIDÆ.

412. Amphicyrta simplicipes Mann., C 117, two varieties.—Sitkha, under bark; Queen Charlotte Island.

413. Simplocaria metallica Sturm., *tessellata* Lec.—Common along the affluents of the Tschunuktnu in Kenai; Lake Superior, Michigan, Canada, Mt. Washington, N. H.; northern and alpine Europe.

414. S. nitida Mots., C 116.—Sitkha, under bark; Queen Charlotte Island.

415. Pedilophorus (*morychus*) acuminatus Mann., C 115.—Sitkha, common under stones in moss; Prince of Wales Island, Queen Charlotte Island.

416. Byrrhus cyclophorus Kirby, *concolor* Kirby, C 114, D 180, two varieties.—On Kenai and the sources of the Kaknu on the main land, Hudson Bay region, Canada, Lake Superior, Michigan, Colorado.

417. B. fasciatus Fab., Vega Exp. p. 53.—Coast of Behring Strait; all northern Asia and Europe, Iceland; there are many varieties.

418. Suncalypta setulosa Mann., D 179.—Interior of Kenai.

HETEROCERIDÆ.

419. Heterocerus tristis Mann., D 182.—Sitkha, Nevada, Dakota, Wisconsin, Canada, New York, Massachusetts, Pennsylvania.

DASCYLLIDÆ.

420. Cyphon variabilis Thunb., *pubescens* Fab,, *ovalis* Say, *fusciceps* Kirby, *Helodes picea*, *punctata*, *nebulosa*, *modesta*, see D 204.—Kenai, Vancouver to Hudson Bay and southward to Florida and Texas; Siberia, Japan, Caucasia, Europe, Algeria.

ELATERIDÆ.

421. Epiphanis cornutus Esch., *cristatus* Lec., A 134, C 83, Dp, 273.—Kadjak, Sitkha, Wrangel, Queen Charlotte Island, Vancouver to mountainous Pennsylvania, New Mexico (Horn).

422. Cryptohypnus littoralis Esch., B 5, D 192, two varieties.—Unalaschka, Kadjak, Kenai, Kamtschatka.
423. C. hyperboreus Gall., *planatus* Esch.—Kenai, Kamtschatka, east and west Siberia, the Alps north to Lapland.
424. C. barbatus Sahlb., Vega Exp. 54.—Port Clarence, St. Lawrence Bay on the opposite Asiatic coast. One of Dr. Sahlberg's types was examined by Dr. Horn, who says it is possibly an Arctic form of *Sanborni* Horn, which occurs in the White Mountains, N. H.
425. C. abbreviatus Say, *silaceipes* Germ., *lacustris* Lec., Horn, Tr. Am. Ent. Soc. xviii, 28.—Alaska, Oregon, Canada, Nova Scotia, Massachusetts, New York, Pennsylvania.
426. C. impressicollis Mann., D 193.—Kenai, Oregon, Colorado, Hudson Bay Territory.
427. C. nocturnus Esch., A 138.—Sitkha, Stikine River, B. C., Glenora, Oregon, Nevada; var. *fallax, vestitus, lucidulus* Mann., D 195, 196 and 197.—Various places in Kenai under stones; Hudson Bay, New Hampshire: var. *bicolor* Esch., *limbatus, scarificatus* Mann., *picescens* Lec., C 84, D 194 (four varieties).—Various places in Kadjak and Kenai and the adjoining main land; Oregon to Hudson Bay and Labrador, southward to New Hampshire and New Mexico; Kamtschatka, eastern Siberia.
428. C. musculus Esch., A 139, Dp. 273.—Unalaschka, Kadjak, Kenai, Wrangel, Queen Charlotte Island.
429. C. restrictulus Mann., *musculus* ‡ Cand.—Kenai, White Mountains of New Hampshire (Blanchard).
430. Elater carbonicolor Esch., A 142.—Sitkha, Queen Charlotte Island.
431. E. nigrinus Payk, *pilosulus* Herbst., *anthracinus* Lec., D 190.—The interior and other places in Kenai, Wrangel, Queen Charlotte Island, Vancouver, Canada, Michigan, Vermont; Siberia, northern and central Europe.
432. Megapenthes stigmosus Lec.—Prince of Wales Island, Queen Charlotte Island, Vancouver, British Columbia, Canada, Colorado.
433. Dolopius lateralis Esch., *californicus* Mann., *sellatus* Mann., *simplex* Mots., *sericatus* Mots., *pauper, subustus, Agriotes macer* Lec., A 151, C 86.—Sitkha and throughout the United States and Canada; varies in many ways from entirely pale to entirely piceous.
434. Athous ferruginosus Esch., A 152, three varieties.—Sitkha, Prince of Wales Island, Wrangel and the opposite main land, Stikine River, B. C., Loring, Vancouver, Idaho, Colorado.
435. A. rufiventris Esch., A 154.—Unalaschka.
436. A. triundulatus Mann., D 189.—Sitkha.
437. A. pallidipennis Mann., A 153.—Sitkha.
438. Paranomus (*Dicanthus*) decoratus Mann., D 201.—Kadjak.
439. Corymbites (*Dicanthus*) resplendens Esch., *aerarius* Rand., A 143.—Sitkha, Queen Charlotte Island, Lake Superior northward to Lat. 56°, (Sudbury, Ottawa) Canada, Michigan, Maine, New Foundland.
440. C. volitans Esch., A 146, two varieties.—Sitkha.
441. C. tarsalis Mels.—On the main land opposite Wrangel, Canada, Massachusetts to Maryland, and here in western Pennsylvania.
442. C. caracinus Germ., *lobatus* ‡ Mann., *telum* Lec., A 149, B 6.—Unalaschka, Sitkha, Wrangel and the opposite main land, Queen Charlotte Island Oregon, Michigan.

443. C. lobatus Esch., B 7, D 199, four varieties.—Unalaschka, Kadjak, Kenai, Sitkha, Wrangel and the opposite main land.

444. C. umbricola Esch., A 148, two varieties.—Sitkha, Queen Charlotte Island, Stikine River, B. C. This and the preceding are seemingly valid species.

445. C. angusticollis Mann., A 144, Dp, 273.—Atkha, Kadjak, Chtagaluk, Sitkha.

446. C. sagitticollis Esch., A 147.—Sitkha.

447. C. sericeus Esch., Gebl. Fisch., D 200.—Kenai, Kamtschatka, eastern and western Siberia.

448. C. rugosus Germ., Bonel., var. *confluens* Gebl., D 203.—Kenai, Siberia from the Altai Mountains to the Pacific coast, southern Russia, Caucasia, the Alps.

449. ? C. spectabilis Mann., C 85.—Sitkha, under bark; Queen Charlotte Island.

450. ? C. parvicollis Mann., D 202, two varieties.—Kenai. Mannerheim asks whether this may not be the male of *Paranomus* (*Dic.*) *decoratus*?

BUPRESTIDÆ.

451. Buprestis Langii Mann., A 132.—Sitkha, Stikine River, B. C., Glenora, Vancouver, Washington, Oregon, Colorado, New Mexico, Manitoba. A variety of *B. fasciatus* Fab.

452. Melanophila appendiculata Fab., *longipes* Say, C 82, Dp, 272.—Kwichpakh River, Sitkha, Vancouver to Hudson Bay and southward to Virginia, Kentucky, New Mexico and southern California; Kamtschatka, Siberia, China, Europe.

453. M. atropurpurea Say.—Loring (Alaska), Stikine River, B. C., New Mexico, Texas, Kansas. Resembles the preceding, with which it is often confounded.

454. M. guttulata Gebl., *discopunctata* Fald., *Drummondi* Kirby. Synonymy by Mannerheim, A 130, D 188.—Kwichpakh River (Yukon), California, Rocky Mountains to New Mexico, Hudson Bay region; all Siberia, Mongolia and the Amur countries. Exceedingly variable in every way.

455. Chrysobothris trinervia Kirby, *cicatricosa* Mots., D 187.—Kadjak, Vancouver to Hudson Bay and southward to North Carolina and New Mexico.

LAMPYRIDÆ.

456. Eros hamatus Mann., A 155.—Sitkha, Wrangel, Vancouver.

457. E. simplicipes Mann., A 156.—Sitkha, main land opposite Wrangel, Queen Charlotte Island, Oregon,

458. E. aurora Hbst., *coccinatus* Say.—Wrangel, Oregon, Hudson Bay region, Lake Superior southward to Georgia and Mississippi.

459. Ellychina californica Mots., *facula* Lec.—Wrangel, Vancouver, Oregon, California.

460. Podabrus piniphilus Esch., A 157.—Sitkha, main land opposite Wrangel, Queen Charlotte Island, Vancouver, Oregon, Montana, Canada.

461. P. sericatus Mann., B 8.—Sitkha. Close to, or identical with *P. puberulus* Lec., which occurs at Lake Superior and in Canada (LeConte).

462. P. anthracinus Mann., D 205.—Not rare in Kenai; not catalogued.

463. Telephorus fraxini Say, *ater*, *mandibularis* Kirby, *nigrita* Lec., *binodula* Mann., B 8, Dp, 273.—Unalaschka, Kadjak, Kenai, Sitkha to New Mexico, westward to Hudson Bay and southward to Virginia.

464. Silis pallida Mann.—Sitkha, Queen Charlotte Island.

CLERIDÆ.

465. Thanasimus undulatus Say, var. *nubilus* Klug., *abdominalis* || Kirby, *pictus* Spin., C 87.—Sitkha, Lake Superior to Lat. 65°, Canada, New Hampshire, Michigan, Kansas, Colorado, New Mexico.

466. Necrobia ruficollis Fab., B 9½.—Sitkha; all North America. Cosmopolite.

PTINIDÆ.

467. Ptinus fur Linné, A 167, Dp, 273.—Kadjak, Sitkha, North America, Kamtschatka, Asia, Europe. Nearly cosmopolite.

468. Sitodrepa panicea Linn., A 166, C separat. p. 102.—Sitkha; all North America. Cosmopolite.

469. Dinoderus substriatus Payk., D 206.—Abundant in Kenai, Colorado, Northern States, Canada; eastern and western Siberia; all Europe.

CIOIDÆ.

470. Cis americanus Mann., C 156, Dp, 176, two varieties.—Kenai, Sitkha.

471. C. biarmatus Mann., C 155, Dp, 173.—Kenai. Abundant in Sitkha.

472. C. tridentatus Mann., C 154.—Sitkha.

473. C. ephippiatus Mann., D 207.—Sitkha.

SCARABÆIDÆ.

474. Aphodius guttatus Esch., A 192.—Common in Unalaschka.

475. A. aleutus Esch., A 191.—Unalaschka, Wrangel, Washington, Oregon, California, Colorado; var. *ursinus* Mots., D 283.—Kenai, Colorado; Kamtschatka, eastern and western Siberia.

476. A. congregatus Mann., *arcticus* Harold, D 184, two varieties.—Abundant in Kenai; California.

477. Aegialia cylindrica Esch., A 194, D 186, four varieties.—Unalaschka, Kenai, Sitkha, Wrangel, Queen Charlotte Island, Stikine River, B. C., Washington.

478. A. exarata Mann. (1853), D 185.—Sitkha. Dr. Horn, in his Revision, states that this is possibly a synonym of *A. lacustris* Lec. (1850), which occurs in the Lake Superior region and at Garland, Col.

SPONDYLIDÆ.

479. Spondylis upiformis Mann., A 277.—Sitkha, British Columbia, Washington, Oregon, California, Idaho, Lake Superior.

CERAMBYCIDÆ.

480. Prionus californicus Mots., *crassicornis* Lec.; var. *curvatus* Lec., C 165.—Sitkha, Washington, Oregon, California, Nevada, Colorado, New Mexico.

481. Asemum mœstum Hald., *striatum* ‡ Kirby, *fuscum*, *juvencum*, *substriatum* Hald., D 238.—Kenai, Stikine River, British Columbia to Hudson Bay and southward to Florida, Louisiana and New Mexico.

482. Tetropium cinnamopterum Kirby, D 237.—Kwichpakh River (Yukon), Washington, Oregon, California, Lake Superior region to Lat. 55° and southward to New Jersey and Pennsylvania.

483. Opsimus quadrilineatus Mann., A 279.—Sitkha, Wrangel, Queen Charlotte Island, Oregon, California. Varies in color.

484. Phymatodes dimidiatus Kirby, *Physocnemum dimidiatum* Mann., *palliatum* Hald., *Mannerheimi* Lec., B 15, very variable.—Unalaschka, Vancouver, Washington, Idaho, through the Rocky Mountains to New Mexico, across the northern part of the continent to Maine and Massachusetts.

NOTE.—An example taken at Wrangel was referred, doubtfully, to *P. aeneus* Lec.

485. Merium (*Callidium*) proteum Kirby, D 236.—Kwichpakh River (Yukon), British Columbia to Hudson Bay, Canada; here in western Pennsylvania.

486. Callidium cicatricosum Mann., D 235.—Kenai, Colorado.

487. Rosalia funebris Mots., C 166.—Sitkha, Vancouver, Washington.

488. Leptalia (*Anoplodera*) macilenta Mann., D 245.—Kenai, Stikine River, B. C.; var. *Frankenhauseri* Mann., D 244, Kenai, main land opposite Wrangel; var. *fuscicollis* Lec., Vancouver to California.

489. Rhagium inquisitor Linn., D 240.—Sitkha; thought by Mannerheim to have been imported as larvæ in pine wood.—Kamtschatka, Amur countries; all the pine regions of Siberia, Japan and Europe. *Indigator* and *minutum* Fab. are synonyms; var. *investigator* Mann., C 168, Sitkha, Queen Charlotte Island, this is the Pacific slope form; var. *lineatum* Oliv, this is the prevailing form in the pine regions of the Rocky Mountains and all the Atlantic district to Florida.

490. Pachyta liturata Kirby, *uitens* Lec., C 169.—On the continent, on the Bay of Kenai, Stikine River, B. C., Vancouver to Canada, and northward to Hudson Bay, Lat. 56°; Michigan, Vermont, Washington, Idaho to New Mexico.

491. P. monticola Rand.—Main land off Wrangel; Lake Superior region, Canada to Maine, Anticosti, New York, western Pennsylvania (here).

492. Acmæops pratensis Laich, *Leptura semimarginata* Rand.; var. *Pachyta fulvipennis* Mann., D 242.—Kenai, through the Rocky Mountains to Colorado and New Mexico, Wyoming, Michigan, Maine; arctic and eastern Siberia, northern China, alpine and northern Europe.

493. Leptura (*Grammoptera*) subargentata Kirby, D 243, two varieties.—Kenai, Glenora, B. C., Vancouver to California, Montana, Nevada to Colorado and New Mexico, Michigan, Lake Superior to Hudson Bay, Canada, New York, Massachusetts, New Hampshire.

494. L. vexatrix Mann., D 241, two varieties.—Various places in Kenai, Washington to California, Nevada.

495. Plectrura spinicauda Mann., *producta* Lec., C 167, two varieties.—Sitkha, Vancouver, Washington.

496. Monohammus scutellatus Say, *resutor* Kirby, *oregonensis* Lec., D 239.—Kwichpakh River (Yukon), Stikine River, Vancouver to Hudson Bay. Through North America generally in most pine regions.

CHRYSOMELIDÆ.

497. Donacia femoralis Kirby, *Germari flavipennis* Mann., *indica* Mels., A 281, B 14½, C 170, four varieties.—Sitkha, mainland off Wrangel, Vancouver, Washington, westward to Nova Scotia, Mt. Washington, N. H., Pennsylvania.

498. Syneta carinata Mann., A 283.—Sitkha, Vancouver, Washington, Idaho, Utah.

499. S. simplex Lec.—Main land off Wrangel: Washington, Oregon, northern California.

500. Adoxus obscurus Linn., var. *Bromius vitis* Fab., *Eumolpus cochlearius* Say, D 246.—Kenai, Washington, Nevada and through the Rocky Mountains to New Mexico, California, Lake Superior region, Canada to New Hampshire; Siberia, Europe; *vitis* is the form from Lake Superior eastward.

501. Chrysomela subsulcata Mann., D 247, two varieties, D 247.—Island of St. Paul.

502. Lina lapponica Linn., D 248.—Various places in Kenai, Hudson Bay region, the greater part of North America; common in Siberia, China and Europe.

503. Gonioctena arctica Mann., *affinis* ‡ Mann., C 172, D 250, four varieties.—Various places in Kenai, the mountains of British Columbia, Hudson Bay region, but not far southward; Arctic Siberia, southward to the Amur, Europe, if *arctica* is a variety of *Linnaeana* Schrank, *triandræ* Suff. as some authors assert.

504. G. viminalis Linn., D 249.—The Kwichpakh River (Yukon), Arctic Siberia southward to the Amur, Europe.

505. Phyllodecta (*Phratora*) interstitialis Mann., D 251.—The Kwichpakh River (Yukon). A comparison of examples taken there with *vulgatissima* Linn. will probably show them to be identical; the latter occurs in the Lake Superior region, Canada, Iowa, Michigan, New York, New Hampshire, here in Pennsylvania, Ohio; Siberia, China, Turkestan, Europe, Canaries, etc.

506. P. scutellaris (Sahlb.), Vega Exp. p. 55.—Coast of Behring Strait.

507. Galerucella nymphææ Linn., *sagittariæ* Gyll., *marginella* Kirby, *femoralis* Mels., *luctuosa* Mann. (Horn, Tr. xx, 79) (*luctuosa* C 171, D 252, two varieties.—Various places in Kenai). Fort Simpson on the McKenzie River to Hudson Bay and southward to Virginia, Texas and California (on *nymphæa*, *nuphar* and *sagittaria*); Europe, Siberia. In Canada I took this species on *nuphar*.

508. Haltica tombacina Mann., D 253.—Kenai, California, Montana.

Obs.—*Cassida nobilis* Linn., supposed to have been imported from Europe in larva or pupa state, occurred at Sitkha.

TENEBRIONIDÆ.

Obs.—*Emmenastus rugosus* Mots., Bull. Mosc. 1845, 1, p. 76, is doubtfully referred to as an inhabitant of Sitkha, C separat. p. 105.

509. Phellopsis porcata Lec.—Wrangel, Stikine River, B. C., Queen Charlotte Island. This is the Pacific slope variety of *obcordata* Kirby which occurs throughout Canada and the northern States.

510. Tenebrio mollitor Linn., C 125.—Sitkha, imported. Cosmopolite.

511. Tribolium (*stene*) ferrugineum Fab., A 227.—Sitkha, Wrangel; imported. Cosmopolite.

512. Gnathocerus (*cerandria*) cornutus Fab., C 124.—Sitkha, California, Louisiana. Cosmopolite.

513. Echocerus (*cerandria*) maxillosus Fab., C 125.—Sitkha (introduced), many places in Canada and the United States; southern France, Madeira, etc.

514. Alphitobius piceus Oliv., *Heterophaga mauritanica* Fab., C 123.—Sitkha (imported), Philadelphia, Pa., Florida, New Orleans, La. Cosmopolite.
515. Phaleria picta Mann., A 226.—Sitkha.

ÆGIALITIDÆ.

516. Aegialites (*Elosoma*) californica Mots., *debilis* Mann. (Horn, Tr. xx, 143). D 101.—Peninsula of Kenai, Sitkha, California.

MELANDRYIDÆ.

517. Serropalpus barbatus Schall., *striatus* Hellen, *substriatus, obsoletus* Hald., D 260.—Kenai, Oregon to Maine, through the Rocky Mountains to New Mexico; Siberia, Europe.
518. Marolia (*Dircæa*) Holmbergii Mann.—Sitkha, Queen Charlotte Island; *fulminans* Lec., from Oregon is most probably synonymous.
519. Hallomenus basalis Mann., D 261.—Kenai, Glenora, B. C.; *punctulatus* Lec., from Canada and Quebec may be synonymous.
520. Microscapha arctica Horn, T. xx, 144.—Wrangel.
521. Stenotrachelus arctatus Say, *obscurus* Mann., C 129.—Sources of the Kaknu on the main land contiguous with Kenai, the Rocky Mountains to New Mexico, Dakota and the Lake Superior region, northward to Hudson Bay region, Alleghany Mountains, in western Pennsylvania.

PYTHIDÆ.

522. Pytho deplanatus Mann., D 263.—Kwichpakh River (Yukon). This has been considered a synonym of *P. americanus* Kirby, but is a genus with species so variable, a comparison of examples is necessary to establish this; *americanus* is identical with *depressus* Linn. ♂ and ♀ examples from Europe when compared with American examples seem to be identical; *depressus* occurs in the mountainous regions from Canada to North Carolina, New York, Michigan, Ohio, Wisconsin, Kansas; Arctic and all Siberia, northern and alpine Europe.
523. Priognathus monilicornis Rand., *Pytho Sahlbergi* Mann., A 234, Dp. 273. —Kenai, Sitkha, Vancouver, Lake Superior, Maine.
524. Salpingus elongatus Mann., C 134.—Sitkha.
525. Rhinosimus æneirostris Mann., D 234.—Kenai, Sitkha.

OEDEMERIDÆ.

526. Copidita (*narcedes*) quadrimaculata Mots., D 262.—Sitkha, northern California.

MORDELLIDÆ.

527. Anaspis sericea Mann., *luteipennis* Lec., A 237, C 131, three varieties. Sitkha, California.
528. A. rufa Say, *pallescens* Mann., A 238, *ventralis* Mels., *filiformis, nigriceps* Lec. —Sitkha, Wrangel, Prince of Wales Island, Port Chester, Queen Charlotte Island, Washington to New Mexico, the greater part of the United States and Canada.

ANTHICIDÆ.

529. Anthicus nigrita Mann., D 265.—The sandy beach at the outlet of the Kaknu in Kenai.

PYROCHROIDÆ.

530. Pyrochroa fuscicollis Mann., Bull. Mosc. 1854, iv, 301; Tr. Am. Ent. Soc. xv, 48.—Alaska; Kamtschatka, eastern Siberia.

531. Dendroides (*Pogonocerus*) ephemeroides Mann., *testacea* Lec., C 130.—Sitkha, Queen Charlotte Island, Vancouver, Washington, Lake Superior.

MELOIDÆ.

532. Meloe strigulosus Mann., C 132.—Kadjak, northern California.

CURCULIONIDÆ.

533. Trichalophus constrictus Lec., *Alophus alternatus* ‡ Mann., A 244, D 232, three varieties.—Kadjak, Sitkha, Glenora, B. C., Vancouver, Washington.

534. T. seriatus Mann., D 233.—Kadjak; various in places in Kenai.

535. Lophalophus (*Liophlœus*) inquinatus Mann., C 135, D 231.—Islands of Atkha, Ungua, Kadjak, Afognak and Sitkha.

536. Lepidophorus lineaticollis Kirby, D 230, Vega Exp. 34 and 54.—Coast of Behring Strait, Kwichpakh River (Yukon), Kenai, Colorado, New Mexico, Canada to Lat. 65°; Asiatic side of Behring Strait at Pittlekaj, Nunamo and St. Lawrence Bay.

537. Apion cuprascens Mann., A 240.—Sitkha.

538. Phytonomus seriatus Mann., D 228.—Kadjak.

539. Lepyrus gemellus Kirby, C 136, D 229, two varieties.—The Kwichpakh River (Yukon), Kenai and the sources of the Kaknu on the main land, Vancouver, Hudson Bay region to Lat. 65°.

540. Emphyastes fucicola Mann., C 139, three varieties.—Island of Edgecombe, Queen Charlotte Island, all the Pacific sea-coast to San Diego, Cal.

541. Plinthus carinatus Bohm. Mann., *Heilipus scrobiculatus* Mann. ♀, A 247, C 137, Dp, 273.—Chtagaluk, Kadjak, Sitkha, Prince of Wales Island, Wrangel, Queen Charlotte Island, Vancouver, Washington, Oregon, Cala.

542. Hylobius confusus Kirby.—Wrangel, the Lake Superior region, Michigan, New York, Massachusetts, Canada.

543. Pissodes costatus Mann., C 138.—Sitkha, Vancouver, Queen Charlotte Island, Washington, Oregon, California, Colorado.

544. Dorytomus (*Errhinus*) rufulus Mann., D 224.—Kenai.

545. D. longulus Lec.—Alaska, Sudbury (Ontario).

546. D. luridus Mann., D 225.—Kenai, Vancouver, Washington, California, Colorado, Michigan.

547. D. subsignatus Mann., D 226, two varieties.—Kenai.

548. D. alaskanus Casey, Ann. N. Y. Acad. Sci. vi, 374.—Alaska (cab. Lec.).

549. D. Mannerheimi Germ., *restitus* ‖ Mann., D 227, two varieties.—Kenai, British Columbia.

550. Erycus (*Errhinus*) morio Mann., D 223, two varieties.—Kadjak, Kenai, Wrangel, Vancouver, Manitoba, Canada, Great Slave Lake. According to Faust, Bull. Mosc. 1882, this is a variety of *E. æthiops* Fab., which occurs in northern Europe and Siberia; *rufipes* Mots. is another variety, which occurs along the eastern Amur.

551. Trachodes ptinoides Germ., *fasciculatus* Mots., A 249.—Unalaschka, Wrangel, Queen Charlotte Island, Vancouver, California.

552. T. quadrituberculatus Mots., C 141.—Sitkha, Vancouver.

553. T. horidus Mann., C 140.—Sitkha, Queen Charlotte Island, Vancouver.
554. Magdalis ænescens Lec.—Wrangel, Oregon.
555. Ceutorhynchus pusio Mann., C 142.—Sitkha, Clear Lake in California.

CALANDRIDÆ.

556. Calandra oryzæ Linn., A 253.—Sitkha. Cosmopolite.
557. Rhyncolus brunneus Mann., A 255, D 221, two varieties.—Kenai, Sitkha, Vancouver, Queen Charlotte Island, mountains of southern California, New Mexico, Canada, Vermont, New Hampshire. Mr. Casey has recently described several new species in this genus, some or all of which may be confused in the distribution given.

SCOLYTIDÆ.

558. Pityophthorus (*Bostrichus*) nitidulus Mann., *atratulus* Lec., A 263, C 152, Dp, 273, three varieties.—Kadjak, Kenai. Abundant in pine in Sitkha, California.
559. Xyloterus bivittatus Kirby, *rufitarsis* Kirby, *cavifrons* Mann. ♂, A 260, C 153, D 213, three varieties.—Various places in Kenai, Sitkha, Prince of Wales Island, Loring, Queen Charlotte Island, Vancouver, eastward to Hudson Bay and Maine, and southward to New Mexico and California. This is now considered identical with *lineatus* Oliv. which occurs in Siberia and Europe.
560. Cryphalus striatulus Mann., D 212, two varieties.—Various places in Kenai.
561. Dryocœtes autographus Ratz., *Bostrichus septentrionis* Mann., *B. semicastaneus* Mann., four varieties, A 261, C 150, D 210.—Chtagaluk, Afognak, Kenai, Sitkha, QueenCharlotte Island, Lake Superior, Canada, Michigan, Virginia; Europe.
562. D. affaber Mann., C 151, D 211, two varieties.—Kenai, Sitkha, Glenora, B. C., Lake Superior, Michigan, Colorado.
563. Xyloceptes concinnus Mann., C 149, D 209, four varieties.—Chtagaluk, Kadjak, Sitkha, Queen Charlotte Island.
564. Tomicus interruptus Mann., C 147, D 208, four varieties.—Kenai, Sitkha, Hudson Bay Territory.
565. T. tridens Mann., C 148, Dp, 273, two varieties.—Kwichpakh River (Yukon) Kenai, Sitkha.
566. Polygraphus (*Hylesinus*) rufipennis Kirby, *nigriceps* Kirby, *sagimatus* Mann. (immature), D 214, 215.—Various places in Kenai, Glenora, B. C., the pine regions of Canada and the United States southward to Georgia and Louisiana.
567. Hylesinus sericeus var. *nebulosus* Lec., A 256, C 144, two varieties.—Sitkha, Queen Charlotte Island, Vancouver, California, Colorado.
568. Dendroctonus (*Hylurgus*) rufipennis Kirby, D 217, two varieties.—Chtagaluk, Kenai, Vancouver to Anticosti, New Brunswick and southward to Florida and New Mexico; *punctatus* Lec., is a variety (Dietz); var. *obesus* Mann., *similis* Lec., A 257, C 216, four varieties.—The islands of Atkha, Sitkha and Queen Charlotte, northern British Columbia, Colorado, Lake Superior. This is rather a race than a variety.
569. Dolurgus (*Hylastes*) pumilus Mann., A 259, C 146, Dp, 273, three varieties.—Chtagaluk. Common in Sitkha and Queen Charlotte Island.

570. Hylastes nigrinus Mann., C 143,—Sitkha, Washington, Oregon, California.
571. H. cavernosus Zimm.—Loring (Alaska), Michigan, Canada. "The Atlantic States" (Zimmermann).
572. Hylurgops (*Hylastes*) rugipennis Mann., A 258, D 218, two varieties.—Kadjak, Sitkha, Loring, Washington to southern California, Colorado, Wisconsin, Michigan.
573. H. subcostulatus Mann., D 219.—Kenai, Oregon, Sierra Nevada Mountains, California through the coast range, New Mexico.
574. Hylastes cristatus Mann., D 220.—Interior of Kenai. Referred doubtfully to *Hylurgops* by Dr. LeConte.

SUMMARY.

Number of families, 47; genera, 256; species, 574.
Number of species common to both hemispheres, 138.
Number of species occurring in Alaska and other parts of North America, but not recorded from the eastern hemisphere, 241.
Number of species occurring in Alaska and not recorded from elsewhere, except some from Queen Charlotte Island, 175.
Number of species imported through commerce, 17.
Doubtfully Alaskan, 3.
Species common to northern Asia and Alaska not recorded from other parts of North America, 33.
Species found in continental Alaska, 61.
Some of these likewise occur on the Alaskan islands and peninsulas; also elsewhere in northern America and Asia.
Number of species taken on the coast of Behring Strait and along the Yukon, 28.

The valley of the Yukon is probably rich in Coleoptera. Mr. Wm. H. Dall, in his "Alaska and its Resources" mentions (p. 67) having taken at Nulato, on April 10th, a large number of a small musk-beetle of a steel-green color and strong odor [probably an *Acmæops*]; and several other species were obtained from stumps and mossy hillocks which projected above the level of the melting snow. These seem to have been lost to science as well as those said to have been taken at Point Barrow during the cruise of the "Corwin." This is to be regretted, as there is no record of any named species of Coleoptera having been taken in North America within the Arctic Circle, except *Quedius fulgidus* at Discovery Bay, beyond the 82° of latitude.

SUPPLEMENT.

Carabus truncaticollis Esch.—Occurs on the Yukon.

Cercyon analis Payk, *maculatus* Mels.—Prince of Wales Island (my coll.), Queen Charlotte Island, B. C.; Iowa and Canada to Louisiana. Many places in eastern and western Siberia, Europe to 68° Lat., Algeria.

NOTE.—The Alaskan examples in my collection (3) were collected by a friend tourist, and those from Queen Charlotte Island by Rev. Mr. Keene (15). Though mature, the most of the examples are palid; but one of those from Alaska and two from the latter place differ scarcely from the piceous eastern examples. There seems to be no record of the occurrence of this species between Iowa and Alaska. Is it not probable that the eastern form has been introduced from Europe, and that the Alaskan form is *autochthonous?*

Euthiodes scitula Mack.—According to Dr. Brendel, all our species under *Euthia* must be referred to *Euthiodes*, and he describes the supposed *scitula* occurring in the Alleghanies under the name *cristata*, T. xx, 283.

Faronus parviceps Mack., *Sonoma cavifrons* Casey. This synonymy is made by Mr. A. Raffray and Dr. Sharpe, who likewise repress *sonoma*, and refer all the species of *Faronus* on the Pacific coast to *Sagola*, T. xx, 282. Mr. Casey, however, defends his genus, and redescribes *parviceps* from one of the Frankenhauser types in Dr. LeConte's collection, Ann. N. Y. Acad. Sci. vii, 436 and 440.

Bryaxis albionica Mots.—Mr. Casey places this in *Reichenbachia*, but this is degraded in the European catalogue No. iv, to a section of *Bryaxis:* l. c. 507.

Diaulota densissima Casey ♀.—Alaska (main land opposite Wrangel). Mr. Casey also describes the ♂ of another species taken on Queen Charlotte Island under the name *D. insolita;* l. c. 354.

Amblopusa brevipes Casey, probably the ♂.—Wrangel, Alaska. This and the preceding genus are related to *Liparocephalus;* l. c., 356.

Oxytelus fuscipennis Mann.—Mr. Casey doubts the correctness of Mr. Fauvel in uniting this with *O. laqueatus* Marsh.; l. c. 387.

Homalium suffusum Casey.—Hunter's Bay, Prince of Wales Island; l. c. p. 424.

H. exsculptum Mack.—Occurs in Humboldt County, California, as well as in Sitkha; l. c. p. 426.

Leptinillus validus Horn.—Taken from the skins of beaver taken in Alaska, as well as in the Hudson Bay region

Campylus variabilis Esch. (Zool. Atlas, 1829, i, 33), var. *varians* Germ. var. *Sahlbergi* Germ. ♀.—Hudson Bay region (Ulke's collection); Kamtschatka, Koultoe, Chingan, Nikolaevsk; var. *fulvus* Mots., also occurs in Alaska (Ulke's coll.).

Dorytomus longulus Lec.—The Yukon (Alaska), Sudbury (Ontario).

Amara hæmatopus and Agabus tristis Aubé occurred in America north of the Polar circle; Bul. 15, U. S. Nat. Mus. Smith's Misc. Coll. xxiii, 1883.—The record of a species described under the name *A. hæmatopus* has not been found either in American or European literature.

INDEX TO FAMILIES.

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BYRRHIDÆ	5	7	412
CALANDRIDÆ	2	2	556
CARABIDÆ	23	128	2
CERAMBYCIDÆ	15	17	480
CHRYSOMELIDÆ	10	12	497
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DESCRIPTIONS OF NEW GENERA AND SPECIES OF NOCTUIDÆ.

BY JOHN B. SMITH, SC. D.

One of the least attractive parts of entomological work is, to me, the description of new species, and wherever possible I put it off until I can monograph the groups to which the species belong; first, because there is less danger of making bad synonyms; second, because the species can be compared by means of tabular synopses, and recognition rendered more easy. There is a difficulty in practically adhering to this rule, from the fact that new species are constantly turning up, and that a monograph scarcely off the press, becomes incomplete as soon as a batch of material is received from a new locality. While it is unusual to receive new material now-a-days from the Eastern, Middle or Central States, the Southern States still contain much that will have to be described, and the supply of new species from the Rocky Mountain chains seems inexhaustible.

By far the greater number of species described in this paper are of this Rocky Mountain fauna, and the bulk of them come from a few collectors.

Mr. Bruce, as usual, contributes a large share of the species, some of them collected in 1892, but others taken years back, and which have been awaiting further material. Not all the species determined as undescribed in his collections of 1892 are here characterized; a number of them were represented in the material sent me by single specimens only, and most of these were returned to Mr. Bruce with a request for additional examples if they were to be had. As I have had no response, I take it that there are no further specimens available.

Dr. William Barnes, Decatur, Ill., sent me for determination a very large and most interesting lot of specimens, mostly taken at Glenwood Springs, Colo. This lot is especially valuable, because the collections covered a large part of the season, because the specimens are dated, and because the locality is exact, and not merely "Colo."

Mr. Thomas E. Bean, Field P. O., British Columbia, sent me a very interesting lot of specimens taken there and at Laggan, Alberta Province, and containing some quite remarkable species.

Finally, Mr. Neumoegen has sent me, at odd times, specimens to which he was desirous of having the names affixed.

A notable feature of the fauna from which I am describing, is the very large number of species of *Oncocnemis*, or allied forms. They form a distinctive feature, and fix the true home of the genus, of which the European fauna boasts but four species; thirty-one species are recorded in my check-list; one species is added in a short paper on the Noctuidæ of the Death Valley Expedition, and six specimens are here first described as new—a total of forty-three species.

The agrotid series yet furnishes additions to our list, and most of them of the *Carneades* type.

Four additional species of *Xylomiges*, so soon after the genus had been monographed were unexpected, and in *Cucullia*, a handsome and large new form is a striking addition.

The location of the types of the species is indicated in most instances, and wherever they are in my personal control they will be deposited in the U. S. National Museum.

Finally, a few words concerning the plates. Pictures are undoubtedly a very great aid to the determination of species; but good pictures have been very expensive in the past, and are not cheap even yet. Recently, photography and reproductions from photographs have become so vastly improved, that I concluded to try this method of illustration to test its usefulness. Color values can now be indicated in many cases by the use of orthochromatic plates, though even with these, if the specimens are not reasonably similar in general tint failure will result, because, while some may be over exposed, others will present little or no contrast.

In the reproduction, all minute detail is lost. By the cross-hatching, which all these methods require, fine powderings obvious enough in the photograph are lost, and a general impression only is given. Yet even this is a very great assistance, and I believe that in most instances the species described in this paper can be recognized more easily than they could have been by verbal descriptions alone.

EPIDEMAS gen. nov.

Head moderate in size, retracted, front smooth, palpi small and weak, little exceeding the front, drooping. The tongue is weak and short, practically obsolete; the eyes are naked, with a distinct fringing of hairy lashes at the posterior border. The antennæ in the

male are distinctly serrated, the teeth furnished with tufts of stiff hairs; in the female they are simple. The thorax is short, stout, quadrate, the vestiture rather long, loose, and fluffy, composed of flattened hair rather than scales, and forming no distinct tufts, though the edges of the patagiæ are well marked. The abdomen is comparatively short, though exceeding the secondaries, and it is longer in the female than in the male. In the latter there is a very small basal tuft on the dorsum, and laterally the segments are obviously tufted. The legs are short, not very much longer posteriorly, nor very stout; not spinose, nor are the anterior armed in any way at tip. The wings are short and rather narrow, the primaries pointed at tip, the outer margin very oblique, somewhat less so in the female: the secondaries are proportionate to the primaries. The venation is normal, vein 5 of the secondaries distinct, but obviously weaker than the others.

In appearance this genus is a curiously intermediate form between *Demas* and *Dicopis*, with some of the characters of each and some peculiar to itself. In the wing form, and in the stout thorax and short abdomen it resembles *Dicopis*, but in the habitus and maculation the resemblance to *Demas* is most marked. The unarmed fore tibiæ exclude the genus from the Dicopinæ, with which it might otherwise have been well enough associated. It also has very decided resemblances to *Feralia*, and it is between this genus and *Demas* that I propose to place the new form.

Epidemas cinerea n. sp. (Pl. iv, figs. 10 ♂, 12 ♀).—Ground color ashen gray, powdery. Head and thorax concolorous, immaculate, except that there is a more or less distinct black submargin to the patagiæ. Primaries quite strongly black and white powdered, all the normal maculation fairly distinct. Basal line barely indicated on the costa; t. a. line distinct, geminate, defining lines black, the included space white and contrasting; in course it is outcurved, somewhat drawn in on the subcostal vein; t. p. line geminate, strongly outcurved over the reniform, then evenly oblique, parallel with the outer margin. The inner defining line is distinct and black, the outer more or less indistinct and partly obsolete. the included space white; s. t. line white, irregular, incomplete, more or less defined by blackish powderings preceding or following it. A series of blackish terminal lunules; fringes cut with pale and dark gray, and with a dark interline. A triangular black dash in the submedian interspace at base, which sometimes does not reach the t. a. line. Claviform prominent, extending across the median space, very distinctly black margined inferiorly, less well defined above, included space white or very light gray. Orbicular of good size, oblong, oblique, black ringed and white centered. Reniform large, upright, inwardly defined by a black line, outwardly vague, shading off into the ground color; or in some cases marked by a whitish annulus; usually it is somewhat

paler than the ground color, but in some cases there is very little or no difference. Secondaries white, black powdered, with a vague outer transverse line and a distinct, marginal line. Beneath white, powdery, both wings with a blackish discal spot. Expands 30–35 mm.; 1.20–1.40 inches.

Hab.—Glenwood Springs, Colo., September and October, Barnes; ten specimens.

In the series before me very little variation is observable, except in the somewhat lighter or darker ground color, and the relatively more or less distinct ornamentation. None of the specimens are perfect, and all of them bear the ear marks of electric light captures. The males at first sight have quite a strong habital resemblance to *Charadra palata* Grt.

Chytonix connecta n. sp. (Pl. iv, fig. 2)—Ground color a dull luteo-fuscous, powdery. Head and thorax concolorous, immaculate. Primaries with the basal space and the median space below the dash connecting the median lines, dark smoky brown. Basal line single, black, distinct, extending to the short basal black dash. T. a. line black, single, a little outwardly oblique, even to the median vein, then dentate to the hind margin. T. p. line single, black, rather slender toward the costa, slightly irregular, forming one distinct angle opposite the median vein; below this point a distinct white line follows the black, and there is a somewhat diffuse powdering beyond that point. The s. t. line is fragmentary, very irregular, marked toward the apex by white scales, hardly distinguishable below that point. There is a narrow lunulate terminal line. A fine brown median line is fairly well marked, and makes a long outward angle below the reniform. A narrow black line connects the median lines, defined rather strongly by the contrast between the dark shade below it and the unusually light yellowish tinged space above. In this pale shade the large ordinary spots are evident, though by no means well defined. The orbicular is round, incompletely outlined by brown scales. The reniform is yet less well defined, and is kidney-shaped. Between veins 4 and 5, a black line extends from the cell to the outer margin. The subterminal space is more or less powdered with white scales, and similar scales are less abundantly scattered in other parts of the wing. Secondaries smoky brown with greenish white blotches toward the outer margin; the fringes being of the same pale shade, but based by a series of blackish lunules. Beneath brownish gray, powdery, primaries with an outer transverse dark line and a pale discal lunule; secondaries with a broad subbasal line, an extramedian denticulated line, a submarginal broad dusky shade, and a narrow broken terminal line Expands 37 mm.; 1.50 inches.

Hab.—Texas, Graef.

A single female specimen only. The species is rather closely allied in appearance to *C. sensilis* Grote, but differs markedly in details. There will be no difficulty in recognizing it, I think.

Setagrotis terrifica n. sp. (Pl. ii, fig. 2)—Ground color of head, thorax and primaries a dirty pale luteous, with a more or less prominent admixture of whitish scales; collar with a rather vague brownish transverse line, else thorax

immaculate. Primaries sparsely black powdered, all the maculation imperfect. Basal line vaguely marked on the costa only. T. a. line obsoletely geminate, the inner line faintly indicated, the outer line made up of blackish scales, almost upright save below the submedian vein, where it is outcurved. T. p. line geminate, the outer line marked in the costal region only, inner line dark brown, outcurved over the cell and oblique below that point, where also the line becomes outwardly denticulate on the veins. The s. t. line is indicated by a series of irregular, vague fuscous spots. A series of brown or blackish terminal lunules. A small longitudinal black mark at base, scarcely reaching to t. a. line. Claviform small, with a narrow black outline, paler than ground color. The cell before and between the ordinary spots is more or less completely black-filled. Orbicular oval, irregular, incompletely outlined, open to the costa, whitish filled. Reniform small, upright, scarcely kidney-shaped, whitish, with the centre of ground color. Secondaries white, the veins fuscous powdered, a fuscous discal lunule and a fuscous terminal line. Beneath white, fuscous powdered, both pairs of wings with discal dots and more or less complete outer transverse lines. Expands 34–35 mm.; 1.36–1.40 inches.

Hab.—Colorado, Bruce; No. 51.

Two male specimens are before me, differing somewhat in the ground color. In the darker specimen the basal space, costal region and s. t. space are somewhat paler. The body is robust, the vestiture shaggy and somewhat loose, and the antennæ are unusually long, reaching three-fourths of the distance to the apex of the wing. The tuft of bristles to each joint is unusually long, quite different from the other species referred to the genus. The species is a very interesting one, strongly resembling some of the *Carneades* series. It will be easily separable from the other described species by the pale clay ground color.

Peridroma nigra n. sp. (Pl. i, lower centre figure)—Dark, blackish powdery over a smoky brown base. Head, thorax and abdomen almost concolorous, the latter somewhat lighter in shade. Primaries with all the markings present, and all more or less broken or interrupted. Basal half line black, geminate, the included space whitish powdered, terminating inferiorly in a reddish ocherous blotch at the base of the wing. T. a. line geminate, defining lines blackish, intermediate space with intermixed whitish and ocherous scales; nearly upright, an outcurve above the costal and below the submedian vein. A blackish, diffuse and vague median shade line. T. p. line geminate, inner defining line lunulate the outer hardly distinct from the s. t. space, the interval whitish and ocherous powdered, this powdering extending into the median space a variable distance, and either the ocherous or the white scales may predominate. S. t. line whitish or ocherous, irregular, interrupted, preceded by more or less evident black lunules. A series of black terminal lunules. Claviform small, black marked, with a more or less obvious powdering of white and ocherous scales. Orbicular irregular, oblique, narrowly ringed with black, within which is a white annulus, the centre concolorous or whitish powdered. Reniform large, kidney-shaped, narrowly black-ringed, within which a series of white or ochery scales indicates

an annulus; the centre pale powdered. Secondaries dirty white, powdery, with a clearer outer border, a dusky terminal line and a vague extra median line and discal dot. Beneath whitish, powdery, disc of primaries darker; a more or less obvious outer line and discal lunule. Expands 50 (♂) to 53 (♀) mm.; 2–2.12 in.

Hab.—Colorado, Bruce (No. 231 and 462); Salt Lake City, Utah, Hy. Edwards.

Two specimens (♀) from Mr. Bruce are before me, one of them marked "9, 2, 88," the other without date. In the Hy. Edwards collection there are also two specimens, which I have compared with them but not labeled.

The species while it has the facies and style of maculation of *astricta* and *occulta* is obviously distinct by its dark color and powdery markings. In the male before me the ocherous powderings predominate over white, while in the female the reverse is the case.

The picture is from the female.

PRONOCTUA n. gen.

Head distinct, eyes large, front smooth, palpi moderate, the second joint clubbed at tip, terminal joint small; tongue stout and long. Antennæ in the male simple. Thorax moderate, hardly depressed, but not strongly convex; untufted, or with very inconspicuous tufts merely. Abdomen moderate, in the female somewhat depressed, untufted; middle and posterior tibiæ spinose, anterior unarmed. The legs as a whole are stout, greatly lengthening posteriorly. Wings large, primaries trigonate, with rectangular apices; secondaries with a slight cut below the apex.

Resembles *Noctua* most closely in habitus and in structural characters, but differs in having the anterior tibiæ unarmed, and also in having the slight cut below apex of the secondaries. In the table of genera in my revision of the Agrotids, this genus would be associated with *Adelphagrotis* and *Euretagrotis*, differing from all of them by the depressed appearance, and by the untufted thorax. The genus is described for a species which has been in my hands for some time, and it will also receive *Agrotis pyrophiloides*, which, I have already stated, agreed with none of the genera accepted by me as belonging to the typical Agrotids. The latter species differs somewhat from the new form in that the thorax is less depressed, and the vestiture forms indefinite tuftings, but otherwise the two are sufficiently allied.

Pronoctua typica n. sp. (Pl. iv, fig. 1)—Ground color a reddish luteous. Front of head blackish brown, vertex yellowish. Thorax concolorous. Primaries more or less black powdered, all the normal markings present. Basal line geminate, blackish, not strongly marked. T. a. line outwardly oblique, and outcurved between the veins; geminate, the inner line indistinct, the outer black and distinct. T. p. line single, black, strongly denticulate, outcurved over the reniform, almost evenly oblique below. S. t. line irregular, concolorous, marked by a dusky preceding shade. A series of indistinct terminal dots. Fringes pale, with a dusky interline. A broad, diffuse, blackish median shade, obscuring the reniform, and darkening the outer part of the median space. Claviform wanting. Orbicular small or moderate, concolorous, indistinctly outlined, centred with blackish. Reniform upright, of good size, kidney-shaped, black ringed, more or less obscured by the dusky median shade. Secondaries yellowish fuscous, shining, the veins somewhat darker, and the fringes paler. Beneath very pale yellowish, with an incomplete outer line and discal spot on all wings. Expands 44–48 mm.; 1.75–1.92 inches.

Hab.—Colorado, Bruce; Nos. 229, 491.

This is a large species, and is not unlike my *clemens* in appearance, but is more red in color. In the pattern of maculation it is like its congener, *pyrophiloides*.

Noctua flavotincta n. sp. (Pl. i, first row, fig. 2)—Head and thorax a rather pallid yellowish; palpi chestnut-brown laterally; vertex tipped with scales of the same brown; collar brown, with a dark tip and central line; a small thoracic crest immediately behind the collar, also brown. The breast and a fringing to the legs is of the same tint. Primaries brown, basal space largely yellow tinted, especially at costa, along which the same tint extends to the s. t. space and there crosses the wing as a marginal shading to the t. p. line. Basal half line black marked across the pallid costa. T. a. line indistinctly geminate, the outer part of the line black, the inner portion defined inferiorly only by the contrast between the pale filling and the more brownish base. In course the line is outwardly oblique, a little bent on the cell in one specimen, and with a rather distinct outcurve below the submedian vein. T. p. line rather evenly outcurved, indistinctly geminate, the inner parts distinctly margined by the brown median space, the yellow filling outwardly rather diffuse between the veins which are dusky, giving a somewhat radiate appearance. The s. t. space darkens outwardly, sharply defining the somewhat irregular s. t. line; the latter is yellow, outwardly diffuse. The terminal space is concolorous or somewhat paler, in the latter case with a dusky terminal line; the fringes also with a dark interline. A black dash at base, not crossing t. a. line. Claviform moderate, black-filled. Median cell before and between the ordinary spots black-filled. Reniform upright, somewhat constricted centrally and dilated, decanter-like, inferiorly; a narrow, pale annulus and a central pale line, else concolorous with the orbicular. Orbicular oblique, narrow ovate, touching the pallid costa, but completely ringed by a paler yellow annulus and somewhat paler centred than ground color. Secondaries fuscous, somewhat paler basally; an indefinite discal lunule. Fringes rather contrasting, yellowish. Beneath, primaries blackish, the margins yellowish brown; secondaries yellowish, black powdered, with an outer black line and discal lunule. Expands 34 mm.; 1.36 inches.

Hab.—British Columbia.

Two males, collected by Mr. C. J. Weidt, are before me. The species is most nearly related to *oblata* Morr.; but differs obviously in the coloration and maculation. I do not know of any species with which it could be easily confused.

Carneades siccata n. sp. (Pl. ii, fig. 1)—Very pale, whitish gray, with a more or less obvious yellowish tinge. Head and thorax immaculate. Primaries more or less powdered with black scales, often darkening the subterminal spaces. Basal line present, black, geminate, interrupted. T. a. line black, geminate, inner line diffuse, powdery, outer line outcurved between the veins, slightly oblique in general course. T. p. line black, geminate, the outer line lost in the black powderings, the inner line lunulate, variable in distinctness, in one case almost obsolete; in general course it is evenly and not greatly outcurved over the cell and rather evenly oblique below. S. t. line of the ground color, irregularly but not greatly sinuate, relieved by the dark powderings in the s. t. and terminal spaces, and distinct in proportion to the amount of these powderings. A blackish diffuse median shade, variable in distinctness, crosses the wing between the ordinary spots. A series of more or less obvious black terminal lunules. Claviform wanting in the specimens. Reniform large, kidney-shaped, black, forming a prominent feature in the wing. Secondaries white, veins and a slender discal lunule a little fuscous. Beneath white, with blackish powderings along the costa and an indefinite discal spot on all wings. Expands 34-37 mm.; 1.36-1.48 inches.

Hab.—Colorado, Bruce; No. 140.

Two males and one female are before me, differing quite markedly in the amount of the black powderings on the primaries. In one case the s. t. space is entirely dusky, in the next it is half black, intense at the s. t. line and shading out toward the t. p. line; in the third the space is only very slightly more powdered than the rest of the wing. The thoracic vestiture is dense, loose and divergent, the antennæ of the male bipectinated. This latter character forbids the reference of the species to any of the established groups of the genus, and it is the first thus far described with pectinated antennæ. I considered it at first a *Porosagrotis* allied to *rileyana*, some forms of which it resembles quite closely, but the sexual characters are distinctly those of *Carneades*, the bifurcated clasper being very obvious.

Carneades edictalis n. sp. (Pl. ii, fig. 3).—Dull fuscous in general color. A blackish line across collar, else head and thorax concolorous. Basal line geminate, black, variably distinct, but always interrupted on the cell. T. a. line geminate, outcurved between the veins, slightly oblique outwardly in general course. The inner line is brown and somewhat diffuse, the outer black and better defined. T. p. line geminate, the outer line vague, the inner blackish, crenulate in its course, evenly outcurved over the cell, and as evenly oblique

below that point. S. t. line broken, concolorous, defined by a series of irregular brown spots and shades in the s. t. space and a generally darker tint in the terminal lunules. Claviform small, concolorous, outlined by a narrow black line. Orbicular round, somewhat paler, variable in size, defined by black scales and by a blackish shade preceding it and continuing between it and the reniform. The latter is large, upright, somewhat constricted medially, inferiorly dusky, else concolorous. Secondaries fuscous, with a faint discal lunule. Beneath paler than above, powdery, with a broad outer dark band and a dark discal lunule on all wings. Expands 35–38 mm.; 1.40–1.52 inches.

Hab.—Colorado, Bruce; Nos. 70, 207, 326.

Mr. Bruce has sent me three specimens, all of them males, and all much alike. One of them is labeled "Salida, 4, 18, 88," the others are more recent captures. The species is simply and quite normally marked, and very much resembles some forms of *brunneigera* in appearance, save that it lacks the median shade line and is more robust in appearance. The antennæ of the male are pectinated, and the species is therefore allied to the preceding (*siccata*), from which it differs at a glance by the totally different ground color, and in many details of maculation.

Carneades segregata n. sp. (Pl. iv, fig. 6)—Ground color very pale luteous. Head grayish, collar pale creamy yellow inferiorly, limited by a black line, above which the color is dull gray. Thorax dull luteous gray, disc more yellowish. Primaries luteous, paler along the costa and internal margin, a smoky shade through the centre of the wing to the t. p. line, becoming blackish in the cell, and again appearing in the terminal space. Basal line visible only as a pale spot cutting a basal black dash, which extends below the median vein. T. a. line pale through the dusky central shade, obsolete in the costal region and along the internal margin. T. p. line obsolete, marked only as limiting the outer margin of the central dusky shade. S. t. line variably marked, pale, emphasized by the dark terminal space and by dusky or black preceding dashes and shades, varying in the specimens. A series of black terminal lunules. Fringes whitish. Claviform moderate in size, black ringed and dark filled. A black, slender line extends from its tip to the anal angle through the middle of the submedian interspace. Orbicular moderate in size, oblique, open to the costa, narrowly black ringed and centred with a very pale yellow. Reniform upright, kidney-shaped, narrowly black ringed, annulate with white, and gray centred. Secondaries in the male whitish, with smoky veins and an indefinite smoky outer border; the fringes white. Beneath whitish, immaculate, except for a dusky discal dot, which, in the secondaries, is faintly visible on the upperside. Expands 31–36 mm.; 1.25–1.45 inches.

Hab.—Colorado.

Seven specimens of this species are before me, all of them males. Two of them are from Mr. Bruce, the others from various sources, none of them with the exact locality. The insect resembles *wilsonii* most nearly in color and in general appearance, but differs in that

the costa is not concave. The terminal space is indented on veins 3 and 4 by pale streaks on those veins, and it therefore belongs to the 4-*dentata* group of the genus. In the specimens before me there is some difference in the amount of the indentation, but it is distinct in all cases, and the s. t. line itself is in some cases scarcely visible. The antennæ are really shortly pectinated rather than serrated, the short branches furnished with bunches of bristles. As it appears now, this species might head the series following immediately after the *wilsonii* group.

Carneades lætificans n. sp. (Pl. iv, fig. 3)—Ground color a smoky red-brown. Collar at base gray in the female, yellow in the male, in both cases limited above by a black line, above which the ground color obtains. Thorax concolorous, the edges of the patagiæ a little lighter. Primaries with the costal region to the t. p. line yellowish in the male, gray in the female, the region along the internal margin also lighter than the remainder of the wing, but not so pale as the costal region. The cell is black filled before and around the ordinary spots. Basal line traceable as a pale dot in the black basal dash below the median vein. T. a. line marked as a pale line through the dusky region below the median vein, the pale color a little defined by a few black scales. T. p. line marked only by the contrast between the dark central portion of the median space, and the paler s. t. space. S. t. line marked only by the contrast between the pale s. t. and dark terminal space. This dark terminal shade does not extend to the apex, and is quite strongly indented on veins 3 and 4 A series of black terminal lunules, followed by a pale line at the base of the fringes. Median vein white to the end of the cell. A black basal dash extends to the t. a. line, beyond which the claviform is attached in the form of a small black loop. Orbicular oval, oblique, open to the costa, white or yellow ringed, with dusky centre. Reniform of good size, kidney-shaped, white ringed, with a gray centre. Secondaries white in the male, smoky in the female, in each case the veins and an outer line darker, fringes again paler. Beneath whitish. Primaries smoky outwardly, secondaries powdery along the costa. In the female there is an incomplete outer line on the primaries, and a distinct discal spot on the secondaries. Expands 32.5–34.5 mm.; 1.30–1.38 inches.

Hab.—Glenwood Springs, Colo., September: Barnes, Nos. 128 and 160.

This species is an ally of *segregata*, than which it is much darker; yet with exactly the same pattern of maculation. I considered the possibility of their being local forms of the same species until I found that in this type the male antennæ are distinctly serrate only and not shortly pectinated as in the other. There is quite a difference between the sexes, as the species is represented in my hands; but it is scarcely likely that this same difference will be equally marked in the general run of the specimens.

The species might be listed next after *segregata*, than which it has also somewhat more stumpy primaries.

Carneades candida n. sp. (Pl. iii, fig. 4)—Ground color a soft mouse-gray over luteous. Head inferiorly paler or luteous, superiorly gray. Collar somewhat mottled gray and luteous, with a blackish central line and a luteous tip. Disc of thorax and patagiæ gray, the margins of the latter and the tips of the tuftings formed of luteous scales. Abdomen white, with a very faint yellowish tinge. Primaries with all the maculation indistinct and interrupted, the ground color somewhat mottled. In the basal space the luteous tinge predominates; in the median space the mouse-gray obtains, but there is a luteous shade through the submedian interspace, lightening the claviform, and another through the cell, including the ordinary spots; the narrow s. t. space is powdery luteous, and the terminal space is evenly gray. Basal line geminate, blackish, not at all prominent. T. a. line geminate, marked by blackish costal spots, thence more gray, almost upright, somewhat outcurved in the interspaces. T. p. line geminate, marked by black spots on the costa, thence interrupted, the outer line even, little defined, the inner better marked, lunulate, as a whole with a very even outcurve from costa to the cell and thence oblique to the margin. S. t. line irregular, marked chiefly by the contrast between the s. t. and terminal spaces. A series of small blackish, terminal lunules. A yellowish line at the base of fringes. Claviform moderate, outlined by black scales, filled with luteous. Ordinary spots small, orbicular round, reniform somewhat oblique, both indefinitely outlined, but made more definite by the filling of luteous scales. Secondaries pure, snow white, the veins slightly yellow tinted. Beneath, primaries powdery white, the black atoms more numerous outwardly, forming a vague discal spot, a more definite outer line and a series of terminal lunules; secondaries white. Expands 33 mm.; 1.30 inches.

Hab.—Boulder, Mont.

Mr. Schoenborn has both sexes, taken by Mr. Titus Ulke. The species belongs to the *pityochrous* series, and is an ally of *mœrens*, from which it differs in the even mouse-gray color, mottled by luteous scales, and in the pure white secondaries of both sexes. Species in this series are closely allied; but I believe that the present is entitled to rank as such without doubt.

Carneades mitis n. sp. (Pl. iii, fig. 10)—Ground color reddish luteous, powdered with black. Head and thorax concolorous, immaculate. Primaries with all the maculation vague, indistinct. Basal line single, blackish, very near to the root of the wing. T. a. line geminate, slightly oblique, outcurved between the veins, inner line indefinite, of the ground color; outer line blackish, fairly distinct. T. p. line rather evenly crenulated, simple, blackish, only fairly evident, followed by a slightly paler shade. S. t. line a little paler, somewhat defined by a vague blackish preceding shade, a very little irregular. A series of small terminal dots, and a pale line at the base of the fringes. There is a very vague median shade line, which in the male darkens the cell between the ordinary spots, but is with difficulty traceable in the female. The claviform is wanting, and the ordinary spots are so indefinite as to be practically indescriba-

ble; all that can be said of them is, that both are of good size, and as far as can be made out, of the normal form. Secondaries white in both sexes, immaculate. Beneath whitish, primaries with an incomplete outer line; secondaries with a discal dot. Expands 30–34 mm.; 1.20–1.36 inches.

Hab.—Glenwood Springs, Colo., September; Barnes, No. 44, 283, 284.

Two males and one female are before me, all of them in fair condition. The species is an ally of *cœnis*, but is smaller, and more vaguely marked, and has the secondaries white in both sexes, resembling, in this particular, *mœrens*, to which it has a marked habital resemblance as well. The median shade, vague as it is, is yet sufficiently obvious to require the reference of the species to the *messoria* group of the genus. In this group it is impossible to confound it with anything known to me.

Carneades collocata n. sp. (Pl. iii, fig. 5)—Ground color a rather dark fuscous brown, with very fine black powderings. Head concolorous, collar with a broad black transverse line, patagiæ with a black submargin. Primaries with all the transverse markings obsolete, the veins all black marked. A black basal dash, at the end of which is the narrow, loop-like claviform, outlined in black, with a concolorous centre. The cell is black-filled before and around the ordinary spots, which are united, decanter-shaped, inwardly pale annulate, the centre concolorous with the ground. The terminal space is somewhat darker than the remainder of the wing, cut with the paler shade of the s. t. space, most obviously on veins 3 and 4, and 6 and 7. These streaks are not of a character to obscure the reference of the species to the *pityochrous* series of species, but are yet obvious. A lunulate terminal line, followed by a pale line at the base of the fringes. Secondaries in the male white, with a dusky terminal line, in the female with a faint smoky tinge, becoming more marked outwardly. Beneath white, powdery along the costa and outer margin, darker in the primaries. Expands 31–33 mm.; 1.24–1.32 inches.

Hab.—Colorado, Bruce, Nos. 321, 481.

This is an ally of *hollemani* and *atristriga*, differing from each of them in the dark, dull and rather even color of the primaries, the costa barely paler in some of the specimens that I have seen, and not at all in others. The secondaries on the contrary are white, in strong contrast to the dusky shade in *hollemani*, and the broadly margined form of *atristriga*. It also bears a resemblance to *insertans*, of the 4-*dentata* series of the genus; but differs from that in the ground color, and in lacking the prominent pale streaks of the series. Male and female are before me, and I am afraid that I have on previous occasions mistaken it for a form of *hollemani* where only one sex was in my hands.

Carneades audentis n. sp. (Pl. iii, fig. 9)—Ground color pale whitish luteous, with scattered black powderings. Head dusky in front, with a blackish transverse line. Collar more evidently black powdered inferiorly. Thorax concolorous. Primaries black powdered along the costa, spreading out beyond the t. p. line to the apex, the entire terminal space and a shade preceding the s. t. line also blackish. Basal line geminate, black, distinct. T. a. line geminate, the inner line marked by a few black scales only, the outer line distinct, black, nearly upright, outwardly bent in the submedian and internal interspaces. In the female the basal space has quite a distinct black powdering which is wanting in the male. T. p. line geminate over the costal region only, below which it is single, narrow and crenulated, black. A distinct broad median shade line, oblique from the costa to below the cell, thence near to and parallel with the t. p. line. S. t. line of the ground color, rather broad, and evenly sinuate, relieved by the contrasting dark terminal space, and a narrow black preceding shade. A series of small blackish terminal lunules. Claviform obsolete. Orbicular obsolete. Reniform small, lunate, black. Secondaries whitish, with a small, more or less obvious discal lunule, an extramedian dusky line and a broad dusky marginal band; fringes white. Beneath white, in the male both wings with an incomplete outer line and discal spot, in the female the secondaries immaculate, the primaries with the disc dusky. Expands 34.5 mm.; 1.38 inches.

Hab.—Colorado, Bruce, Nos. 56, 360.

This species is at a glance referable to the *messoria* group of the genus, and as readily to the first series of the same, in which the vestiture is hairy only. It differs obviously from the four described species which have the secondaries dusky in both sexes, by the very pale whitish luteous ground color; and more markedly from all its allies here, in the transverse line of the secondaries within the outer marginal band; a character that no other species in this series is possessed of, to my knowledge. There should not be any difficulty in recognizing so well marked a species.

Carneades titubatis n. sp. (Pl. iv, fig. 5)—Ground color a very dark red-brown, with a somewhat smoky cast, most evident on the primaries. Head and thorax immaculate, the collar with a slight ferruginous tint. Primaries with the maculation somewhat obscure, yet all traceable. Basal line geminate, the defining lines scarcely darker than the ground color, the included space slightly paler. T. a. line almost upright to the internal vein, thence with a rather long outcurve to the inner margin; obsoletely geminate, only the outer defining line distinct, and that but little darker than the ground color. T. p. line very even, outcurved over the costa, then regularly oblique, more even than the outer margin, with small crenulations on the veins; the line is geminate, the inner defining line distinct, dark brown; the outer blackish, but marked only through the costal region; the included space somewhat paler than the ground color. The s. t. line is very faint, in fact hardly traceable, marked as a rivulous paler shading through the dark outer portion of the wing. A pale line at the base of the fringes. The claviform is moderate in size, outlined with brown scales, else concolorous. Orbicular large, irregularly oblique, outlined with brown and

black scales, within which a few yellowish scales further emphasize it; the centre darker and more dull than the ground color. Reniform large, kidney-shaped, incompletely outlined by black scales, within which is an also incomplete yellowish annulus; the centre darker, but with yellowish scales outwardly. The cell between the ordinary spots is a little darker than the rest of the wing, and there is a very faint indication that a dusky shade line extends through the outer portion of the median space. Secondaries whitish, veins blackish, and an indefined blackish outer border; a pale line at the base of the gray fringes. Beneath, primaries smoky, powdery outwardly and along the costa, an incomplete dusky outer transverse line; secondaries white, powdery gray along the costa, with a broad and rather definite blackish outer marginal band, and a small blackish discal lunule. Expands 35–36 mm.; 1.45–1.50 inches.

Hab.—Oregon, Colorado.

Two male specimens of this species are before me at present, one of them from Mr. Graef's, the other from the Hulst collection. I have seen others, collected in Colorado by Mr. Bruce, but have at present no specimens from him. The species is related to *rufula* and *alticola*, but is abundantly distinct from both. It is much darker in the ground color, in which respect it differs most strikingly from *alticola*, which has similar secondaries, while *rufula*, which most resembles it in the ground color, has the secondaries entirely smoky fuscous in both sexes.

Agrotiphila incognita n. sp. (Pl. ii, fig. 9)—Ground color a dull fuscous luteous, intermixed with gray. Collar with a blackish line near tip surmounted by a gray terminal line; patagiæ with a black submarginal line, dorsal vestiture with gray intermixed. Primaries with the basal space inferiorly, and the median space much darker than the other parts of the wing, in which gray predominates. Basal line black marked on costa and in the submedian interspace. T. a. line geminate, inner line fuscous, outer line black, included space gray, upright, with a slight inward angle at middle and an outward loop below the submedian vein. T. p. line geminate, outer line fuscous, inner line black, included space of the pale ground color, very even, almost rigidly parallel with the outer margin after the usual outcurve over the costa. S. t. line gray, distinct, very even, preceded by a series of short, blackish dashes, forming a more prominent costal blotch. A black terminal line; fringes of the pale ground color. Claviform concolorous, distinctly black margined, narrow, loop-like; a yellowish streak extends from its tip to the t. p. line. The cell is darker filled around the ordinary spots which are of the paler ground color, with gray powderings, and are narrowly black ringed. Orbicular small, semi-oval or V-shaped, open to the costa. Reniform moderate, lunate in form. Secondaries dull ocherous on the disc, becoming smoky toward all margins, with a dusky terminal line and paler yellowish fringes. Beneath, a rather pale tawny yellow, with an incomplete blackish outer line and a small discal spot. Abdomen with an admixture of tawny vestiture, becoming more obvious at the tip. Expands 26–30 mm.; 1.04–1.20 inches.

Hab.—Laggan, British Columbia, above timber, 7000 feet, July 22, 1890; Aug. 10, 1891, Bean, Nos. 462, 492.

Two male specimens are before me, differing quite markedly in size and also in distinctness of the maculation; otherwise alike. The picture was made from the specimen showing the greater contrast. This species is fully congeneric with *A. rigida*, having like it a well-marked clypeal protuberance and heavily armed fore tibiæ. The male antennæ have the joints very slightly serrated and laterally bristled.

Though I feel that *rigida* and *incognita* cannot remain associated with the other species of *Agrotiphila*, they yet resemble them so closely that no great injury will be done by refraining from creating a new genus for their reception until additional material enables us to make a more complete study of the specimens. The new species differs obviously from *rigida* in the ground color, in the course of the median lines, and finally in the color of the secondaries.

Agrotiphila maculate n. sp. (Pl. ii, fig. 7)—Colors black and whitish gray, contrasting. Head laterally gray with a yellowish tinge, front blackish. Collar gray basally and at tip; patagiæ gray margined, dorsum with much of the vestiture gray tipped, else black. Primaries with gray as the base, powdered with black and all the markings black. The median space is more densely powdered than the other pale parts of the wing. Basal line broad and distinct, diffuse inwardly, darkening the extreme base of the wing. T. a. line interrupted, broken on the costa, so that the black spot preceding the orbicular appears to be part of it, making the line seem inwardly angulate at the middle. A dusky shade through the basal space along the hind margin. T. p. line outcurved over the cell and slightly incurved below, single, outwardly toothed on the veins, though scarcely lunulate. S. t. line marked by a preceding black shade, forming a distinct, square patch on the costa, and more or less interrupted below. In one specimen it is a continuous broad shade, in the other it is broken into spots; fringes gray. Claviform small, incompletely black margined: cell filled with black before, between and beyond the ordinary spots, which are of the light gray ground color and are not otherwise defined. Orbicular moderate, oval, oblique, open to the costa. Reniform upright, moderate in size, the inner margin straight, the outer somewhat indented at the middle. Secondaries smoky black, the fringes yellowish white. Beneath, whitish, powdery, with a discal lunule, extra median and broken terminal line on all wings. Expands 31–32 mm.; 1.24–1.28 inches.

Hab.—Laggan, British Columbia, July 22, 1890, above timber, 7000 feet; Bean, Nos. 461, 493.

Two male specimens in fair condition. The antennæ are ciliated, the joints scarcely marked, and the front is smooth. The species, therefore, belong to the typical section of the genus, differing from the other described forms by the blotchy maculation and distinctly anartiform habitus. The two specimens before me differ in the shade

of ground color, and in the dusky shade preceding the s. t. line. In the darker specimen it is complete, in the paler, from which the figure was made, it is broken into spots. The figure, by-the-bye, is erroneous, in that the secondaries are much too light. They have a peculiar whitish sheen in the specimen photographed which gives a misleading effect in the negative.

Mamestra languida n. sp. (Pl. ii, fig. 6)—Ground color a purplish gray, powdered. Head with an obscure, blackish frontal band. Collar tipped with white scales. Primaries with a dusky shade extending from the base over the costal region and through the cell to the t. p. line, becoming decidedly reddish beyond the reniform. The transverse lines are obscure. Neither the basal or t. a. line is traceable below the costa, on which they are indicated by blackish dots. The t. p. line is geminate, smoky brown, widely ontcurved over the reniform and thereafter parallel with the outer margin. The outer component line is the more evident, but neither are prominent. S. t. line yellowish white, obscurely limiting the apical paler patch, then distinct and preceded by a rich velvety black shade to below vein five, forming two long outer teeth on veins three and four, then again preceded by a similar black shade to the inner margin. A series of black interspaceal dots preceding a pale line at base of fringes; the latter cut with whitish opposite the venules. The claviform is very small, faintly black margined. Ordinary spots large, rather paler than ground color. Orbicular round, narrowly brown ringed. Reniform wide, brown ringed, the brown enriched by black scales; a yellowish line outwardly and a paler gray central lunule. Secondaries white, fuscous powdered, darkening outwardly to smoky. A smoky terminal line; fringe whitish. Beneath white, black powdered, primaries smoky on disc. Expands 37.5 mm.; 1.50 inches.

Hab.—Colorado, Bruce; No. 261.

A single male only, and a miniature copy of our eastern *purpurissata*. The antennal characters as to proportion and serration are alike, the short thorax and unusually long abdomen are the same, and the ornamentation is very similar. There are, however, some differences in detail. The t. a. line is fairly evident in the larger species, and the t. p. line is lunulate, not even as in the new species. The dusky shade through the cell and over costal margin is also distinctive, and finally the whitish secondaries furnish a convenient and obvious distinctive character outside of the small size.

I would not be surprised if more abundant material proved my *M. juncimacula* a good species rather than a variety of *purpurissata*, as which I have referred it.

Mamestra fuscolutea n. sp, (Pl. i, row 1, fig. 3)—Of a dull, somewhat fuscous, powdery clay yellow, resembling some forms of *trifolii* in this respect. Head and thorax concolorous. Collar with a vague blackish transverse line medially and near tip; patagiæ with a submarginal blackish line. Primaries with all the markings traceable, but not well defined; the median lines broken. Basal

line geminate, black, included space concolorous, marked only on the costa and submedian interspace. T. a. line geminate, black, interrupted, inner defining line vague, outwardly oblique and outcurved in the interspace, so that it reaches the hind margin at about its middle. T. p. line geminate, the inner line blackish and lunulate, interrupted on the veins, the outer line fuscous, indefinite. A vague median shade line, black-marked on the costa, but scarcely traceable elsewhere until it reaches the inner margin. The s. t. space is rather paler than the rest of the wing, and the s. t. line is prominent, pale, marked with whitish scales preceded by large, blackish fuscous sagittate spots. The line is rather even, save that it is variably indented on veins 3 and 4 by whitish rays on these veins. There are less marked whitish rays on veins 7 and 8 as well, which do not indent the line. There is a series of black terminal lunules preceding a pale terminal line. The fringes are paler than the ground color, with a fuscous interline and cut with fuscous at their tips. The claviform is black-marked, concolorous, variable in size. Orbicular irregularly oval, variable in size, black ringed, then annulate with whitish, centre of the ground color. Reniform irregular, outwardly expanded inferiorly, black margined, then annulate with white, centrally filled by a black powdering, much more prominent inferiorly. Secondaries dull luteous, more whitish and partly transparent basally, more fuscous outwardly. Fringes paler, with a darker interline. Discal lunule visible. Beneath paler, more whitish, fuscous powdered, both pairs of wings with an outer line and a discal lunule, the primaries, in addition, a dusky s. t. line. Expands 35–40 m.; 1.60 inches.

Hab.—Colorado, Bruce; Nos. 284, 291, 380.

One male and two female specimens are before me, from the smaller of which the figure was made. There is another among the material for determination in the collection of the American Entomological Society. The species cannot be positively referred to its proper group in the genus until the genitalia of the male have been examined, but it has the habitus of *chartaria* or *defessa*. The sagittate subterminal marks give the insects a marked resemblance to *Hadena devastatrix*, not in any way lessened by the rather prominently whitish marked reniform.

Mamestra hadeniformis n. sp. (Pl. v, fig. 4)—Ground color a pale sordid luteous gray, with black powderings. Collar with an indefined broad luteous band. Thoracic vestiture with black scales intermixed, forming an indefinite marginal line. The dorsal tufts are small but evident, divided. Primaries with a deeper ashen gray shade along the inner margin, and through the terminal space, the transverse maculation indistinct. Basal line geminate, darker gray, with somewhat paler included space, angulated on the median vein, very little relieved. T. a. line geminate, defining lines scarcely darker, included space of ground color outcurved in the interspaces, with difficulty traceable. T. p. line geminate on costa and inner margin, between which points the outer line is obsolete, the inner only feebly defined, darker gray, accompanied by a narrow white line, crenulated, irregularly bisinuate. A somewhat diffuse median shade, darkening the reniform and close to the t. p. line below it. S. t. line distinct,

white, outwardly angulated below the apex, and outwardly dentate on veins 3 and 4, forming a distinct though not prominent W. A series of small, black terminal lunules, followed by a pale line at base of fringes. The latter of dull luteous fuscous, with a darker interline, and cut with gray opposite the veins. Claviform concolorous, incompletely black margined, short and rather wide. Ordinary spots large, vaguely defined by a few darker scales, and a slightly paler gray annulus. The reniform somewhat darker filled. Secondaries soiled white, with a broad smoky outer margin, smoky veins darker in the female, and white fringes; the latter with dusky interline. Beneath whitish powdery, both pairs of wings with a more or less evident discal spot and outer broken line. Expands 32 mm.; 1.28 inches.

Hab.—Colorado.

Two specimens ♂ and ♀, both collected by Mr. Bruce, the ♂ from Mr. Neumoegen's collection, the ♀ with Mr. Bruce's No. 365.

The species has a decided resemblance to some forms of *Hadena characta* in wing form and ground color, so that it might be easily confused with it at first sight. It belongs with the *w-album* group of the genus, and in color resembles *trifolii*, but with much narrower, more elongate wings. The maculation is obscure, and more so in the ♀ than in the ♂.

Mamestra segregata n. sp. (Pl. ii, fig. 11)—Very dark purplish brown, verging on blackish; a more reddish shade through the centre of the primaries, the lighter regions relieved by gray powderings. Collar with a black above a gray transverse line in the male, which in the female is scarcely traceable. Primaries with the transverse lines all present. Basal line geminate, gray filled, the defining lines vague, except in the submedian interspace, where the inner line is prominently black. T. a. line geminate, gray filled, narrow, the inner line concolorous and not well marked, the outer black, slightly outcurved in the interspaces and rather evenly outcurved as a whole. T. p. line geminate, narrowly gray filled, the defining lines marked by slightly darker scales to vein 4, below which the outer line gradually disappears and the inner line become better marked. As a whole the line is even, outcurved over the reniform and distinctly incurved below S. t. line yellowish, narrow, relieved by darker brown or black powderings on either side. Claviform small, distinctly margined, the apex of the defining lines continued across the median space to the t. p. line. Orbicular large, gray, oval or oblong, oblique, in the male complete, in the female open to the costa, defining lines composed of black scales. Reniform large, gray powdered, upright, slightly dilated inferiorly, defined by a narrow, incomplete black line, inwardly edged by pale scales. Fringes concolorous slightly dentate over the veins. Secondaries deep smoky brown, glistening, with a blackish terminal line and somewhat paler fringes. Beneath, primaries smoky, paler powdered along the costa. Secondaries carneous gray, with blackish powderings, a dusky median shade line and a discal lunule. Expands 36 mm.; 1.43 inches.

Hab.—Laggan, British Columbia, at light, May 13, 17, Bean; Nos. 447, 531.

A good pair is before me. They are robust, the thoracic vestiture

somewhat loose, divergent, forming low, divided anterior and posterior tufts; the clothing of breast and legs loose, woolly. There is a series of dorsal tufts on the abdomen, larger at base and more prominent in the male. The head is somewhat retracted, the palpi short, the antennæ in the male ciliated. The joints are slightly marked and the ciliations are grouped, without forming distinct tufts. The species is scarcely referable with propriety to any of the groups of my paper, coming most near to that of which *latex* is the type. At first sight *subjuncta* is suggested; but the even s. t. line forbids its reference to that series. This combination, very dark brown color, connected median lines, even s. t. line and broad wings, should make the species recognizable.

Scotogramma luteola n. sp. (Pl. ii, fig. 10)—Ashen gray, varying to luteous or fuscous, more or less black powdered. Basal line wanting. T. a. line obsoletely geminate, the inner line of ground color, outer line varying from brown to black, included space slightly paler, the outer line with more or less obvious teeth on the veins, its course, as a whole, rather evenly outcurved. T. p. line single, brown to blackish, more or less evidently denticulated on the veins, its course outwardly over the cell and thence with a deep incurve below, greatly narrowing the median space inferiorly. S. t. line sinuate, marked only by a blackish preceding shade which merges into the ground color before the t. p. line, and is twice interrupted, more or less obviously, opposite the cell and in the submedian interspace. A dusky terminal line. Fringes dusky, with a yellowish interline and cut with yellowish on the veins. A diffuse, dusky, median shade darkening the cell centrally and the median space inferiorly. Claviform wanting. Ordinary spots barely indicated, not sufficiently defined to be described. Secondaries smoky to blackish, with whitish or yellowish fringes. Beneath, varying in shade from whitish to yellowish, black powdered, with a broad diffuse outer band on all wings; secondaries with a more or less obvious discal spot. Expands 28–30 mm.; 1.12–1.20 inches.

Hab.—Laggan, British Columbia, 6700 feet, July and August; Bean, Nos. 463, 495, 496.

The three male specimens before me differ quite considerably in ground color, though the markings are identical in most respects. There is a difference in the amount of contrast and also in the distinctness of the denticulation of the t. p. line. Mr. Bean informs me that the gray forms are normal and that the others are exceptional.

The species has hairy vestiture and finds its nearest ally among the described forms, in *phoca* Moeschl., differing obviously, however, in color and in maculation. It seems rather curious that all the specimens sent me by Mr. Bean are males, while heretofore I have had females almost exclusively, of the species in this genus.

Scotogramma uniformis n. sp. (Pl. ii, fig. 12)—Ground color a dull grayish luteous, with an even and rather dense powdering of black hair and scales. Head and thorax immaculate. Primaries with vague traces of the ordinary markings in the form of dusky cloudings not sufficiently definite to describe. The fringes are somewhat paler. Secondaries smoky, with a yellow tinge on disc, in which a dusky lunule may be traced. Fringes pale straw yellow. Beneath whitish powdery, with a discal lunule and a broad blackish outer margin on all wings. Primaries with the disc dusky; secondaries with quite contrastingly pale fringes. Expands 33 mm.: 1 32 inches.

Hab.—Laggan, British Columbia, July 31, 1891, far above timber (7000 feet); Bean, No. 465.

A single male in very good condition is before me, though Mr. Bean has others. The species belongs in that section of the genus in which the vestiture is hairy, and is readily separated from them all by the lack of any distinct maculation. The vestiture is loose and fluffy on the dorsum and on the ventral side, and the primaries are quite broad, giving the insect a short winged appearance.

Hadena didonea n. sp. (Pl. vi, fig. 7)—Ground color a somewhat luteous brown. Head concolorous, or somewhat smoky. Collar with a black transverse line, above which are some gray scales, giving it a gray appearance, more marked in the female. Primaries more or less powdered with white and black scales, so massed as to cause a gray shade over the costa and along the internal margin. T. a. line geminate, defining lines narrow and partly obsolete, included space whitish gray, also more or less incomplete. In course the line is somewhat oblique outwardly, and is outcurved in the interspaces, outwardly dentate below vein 1. T. p. line geminate, very even, widely outcurved over the cell, and evenly oblique below. The defining lines are blackish gray, the included space paler, except below vein 2, whence it is prominently white to the inner margin. A distinct black bar through the submedian interspace connects the median lines. S. t. line incomplete in the upper part of its course; from the costa to between veins 5 and 6 marked by the contrast between the blackish gray terminal space and the ground color; between this point and vein 3 the ground color extends to the outer margin, and below this the line is distinct and white, making an inward curve so as to leave the terminal space over the anal angle dusky. A pale terminal line preceded by black interspaceal dots. Fringes of the ground color cut with blackish and with a narrow, pale interline. Orbicular oblong, oblique, very badly defined, and not easily traceable in some specimens. Reniform well sized, upright, somewhat constricted medially, incompletely pale ringed and gray centered. Secondaries an even smoky fuscous, with a darker terminal line and paler fringes. Beneath luteous fuscous, powdery, in the female with a discal spot on the secondaries. Expands 30.5–33.5 mm.; 1.22–1.34 inches.

Hab.—Colorado; Bruce, Nos. 260 and 485; Glenwood Springs, Colorado, in August; Barnes, Nos. 363 and 364.

Two males and two females are before me, all in fair condition. The species very much resembles *indirecta* Grote in color and maculation; but is much lighter, and the abdomen is scarcely tufted even

in the male. The male antennæ are finely ciliated. The anal angle of the primaries is somewhat retracted, the outer margin thereby slightly angulated on vein 3.

NEURONIA Hüb.

Moderate, plump species, related to *Charæas* Steph., but differing by the short, densely clothed thorax, which has both anterior and posterior tufts; by the short, membraneous tongue; the stout, more or less pectinated male antennæ, and the short male lateral pieces (harpes) which do not have the inner angle produced hook-like. The eyes are hairy.

The larvæ are plump, cylindrical, shining, with corneous prothoracic and anal shields; dark brown in color, with narrow, yellowish, flesh-colored lateral lines. They feed in May on grass sprouts and roots and pupate in the earth.

The above characterization is a free translation from Lederer, and with it agrees a species now before me. It may be added that the primaries are broad, rather short, trigonate, with a marked, rounded apex and oblique outer margin.

The occurrence of this European genus in our fauna is interesting. It is not a widely distributed one, the species are not numerous, and it is rather aberrant than ordinary in the combination of structural characters. Such genera are rarely represented in widely separated localities, and the question of their origin always gives food for speculation.

Neuronia americana n. sp. (Pl. iii, fig. 3)—Ground color a somewhat sordid luteous gray, with black powderings. Head darker, even in color. Collar yellowish inferiorly, above gray, white tipped. Patagiæ centrally white, limited by a black submarginal line, margin ash gray. Disc of thorax luteous gray or fuscous anteriorly, ashen gray posteriorly, the tuftings inconspicuous. Primaries with all the veins prominently white marked, except through the s. t. space, where they are black. Basal line incomplete, geminate, the defining line blackish, narrow, included space paler, more luteous; the line marked only on the costa and through the submedian interspace. T. a. line geminate, incomplete, marked on the costa by dots, in the submedian interspace by an outercurve, and below the internal vein by an outward angle; the outer defining line is black, the inner not contrasting, included space paler luteous and white powdered. T. p. line geminate, the inner line black, feebly lunulate, the outer scarcely darker, even, included space paler; in course the line bends sharply outward on the costa and thence runs very evenly oblique, almost parallel with the outer margin to its termination on the inner margin. S. t. line white, only a little irregular, except that it is feebly dentated on veins 3 and 4; preceded by a well-marked dusky shade, in which black sagittate spots further emphasize the line. A black

terminal line, cut by the white veins. Fringes cut with white beyond the veins. A black line extends below the subcostal from the base to the orbicular. The latter is small, irregular, almost round, and incompletely outlined. Reniform large, incompletely outlined, nearly concolorous. Claviform large, well defined, extending nearly to the t. p. line, with distinct black outlines. Secondaries soiled whitish, the veins dusky marked, a dusky submarginal band and a small discal lunule. Beneath whitish, powdery, the primaries darker, both wings with an outer line and a discal lunule. Expands 31 mm.: 1.25 inches.

Hab.—Boulder, Mont.

Male and female are in the collection of Mr. A. Schoenborn, at Washington, received from Mr. Titus Ulke.

The antennæ in the male are quite lengthily pectinated, resembling thus *populuris* rather than *cespitis*.

PLATYPERIGA n. gen.

Head rather small, distinct; eyes large, naked, without lashes; front flat, smooth; palpi moderate, terminal joint either small or of moderate size; tongue long, corneous; antennæ in the male simple or ciliated, in the female simple. Thorax small, rounded, vestiture scaly, smooth, forming a small, inconspicuous basal tuft; legs rather slender, unarmed, posterior much longer, with scaly clothing. Abdomen long, slender, untufted or with small scale tufts on the basal segments. Wings large, primaries trigonate, costa somewhat arched, apices rectangular or a little produced; secondaries proportionate; venation normal, vein 5 of secondaries weak.

This generic term is proposed for three species which, with the essential characters of *Perigia*, combine a much slighter body and proportionately large wings. They have a scaly vestiture, different in character from that of the Byrophilid series, and the habitus is Hadeniform, rather than otherwise.

The type of the genus is *P. camina*, in which the wings are broadest, the costa arched, the male antennæ quite densely ciliated, and the terminal joint of the palpi is very short. In *discistriga* the wings are narrower, the costa is not arched, the male antennæ are simple, and the terminal joint of the palpi is moderate in length.

Platyperigea camina n. sp. (Pl. vi, fig. 9)—Head, thorax and primaries immaculate; primaries with all the normal maculation obscure, the t. p. line only barely traceable as a faint pale shade. In the median cell a black dash represents the orbicular and a somewhat lunate, and entirely indefinite black spot represents the reniform. There is a series of obscurely marked terminal lunules, and the fringes have an obscurely pale interline. Secondaries soiled white, outwardly powdery, the veins smoky; a series of well marked terminal

lunules, sometimes united into a terminal line. The discal spot of the underside is visible through the thin wing tissue. Beneath whitish, powdery, darker outwardly and along the costa; secondaries with a rather large and prominent discal spot. Expands 32.5–33.5 mm.; 1.30–1.34 inches.

Hab.—Colorado; Bruce, Nos. 27, 204.

This species is very simply marked and easily recognized. Both sexes are represented in the three specimens that are now before me, and both sexes are also in other collections in which I have given the MS. name here used.

Platyperigea discistriga n. sp. (Pl. vi, fig. 10)—Ground color a rather bright luteous, overlaid with black and white scales, which, massed in spots, form the ornamentation of the species. Head and thorax so densely clothed with these scales that it appears ashen gray, forming no distinct markings. On the primaries the veins are all more or less marked with gray, a gray shade extends along the inner margin, most obvious in the male; another extends over the median vein, gradually broadening, until at the outer margin only the apex and the anal angle are not involved. The costa also, is narrowly gray. In the female the median gray shade is broken beyond the t. p. line, and the ground color appears. The transverse maculation is mostly obsolete, the t. p. line indicated in some specimens by venular black, followed by white dots, and the s. t. line very obscurely indicated by paler shadings. The fringes are gray, cut with white on the veins. Orbicular small, decumbent, gray, outlined with luteous; reniform narrow, upright white, with dark centre. Secondaries whitish, outwardly powdery, with a narrow dark terminal line. Beneath white, powdery, most obviously so toward the costa, each wing with a discal spot, most distinct on the secondaries. Expands 33–36 mm.; 1.32–1.45 inches.

Hab.—Colorado; Bruce, No. 456; Glenwood, Colorado, August, Barnes, No. 291.

Both sexes are represented in the specimens before me, and I have seen others in collections from the same State. The species is entirely different in appearance from the preceding, and yet resembles it in all essential structural characters. The luteous ground color, with the prominent gray shade through the middle will render the species recognizable I think.

Platyperigea præacuta n. sp. (Pl. iii, fig. 6)—Ground color dark ashen gray, powdered with black scales, the appearance varying according to the amount of black in the mixture. Head and thorax concolorous, the basal tuft black inferiorly. Primaries with the median lines single, black, forming the most prominent feature of the wings. The basal line is single, black, distinct, acutely angulated outwardly in the cell. T. a. line a very broad, evenly outcurved fascia, which is a little emphasized by paler scales on either side. T. p. line with small, irregular dentations, evenly outcurved over the reniform, somewhat incurved below. S. t. line an obscure whitish shade, defined in the costal region by a dark shade in the subterminal space, which dark shade reappears distinctly in the submedian interspace; but is fragmentary between. A series

of distinct, blackish terminal lunules, Fringes dusky, with a pale line at base. Claviform wanting. Orbicular moderate in size, oblique, oval, defined by darker scales, a little paler filled. Reniform rather large, kidney-shaped, defined by black scales, somewhat gray filled. Secondaries powdery, blackish, with a black terminal line and paler fringes. Beneath gray, powdery, both wings with an incomplete outer line, and a black discal spot. Expands 32–33 mm.; 1.28–1.32 inches.

Hab.—Colorado; Bruce, No. 11; Glenwood, Colo, September, Barnes, No. 32.

Two female specimens are before me, both of them in fair condition. The distinct and prominently contrasting median lines mark this species at sight. It bears a distant resemblance to that series of *Hadena*, of which *leucoscelis* and *hillii* are typical; but lacks all trace of the abdominal tuftings. From the other species referred to the present genus, it is abundantly distinct. I have had this species in my possession for over three years, awaiting relatives before describing it; and such as I have now found are not very close.

Perigea veterata n. sp. (Pl. iii, fig. 7)—Ground color a very pale whitish luteous. Head and thorax concolorous, immaculate, palpi laterally dusky. Primaries powdered with black scales, which become so numerous beyond the t. p. line that the wing there is blackish. All the maculation is diffuse and obscure; but all of it is at least traceable. Basal line single, blackish, broken. T. a. line blackish, very oblique, irregular. T. p. line narrow, black, crenulated, moderately outcurved over the cell, a little incurved below; single, except that the outer part of the defining line is indicated toward the costa by the dark s. t. space. S. t. line of the ground color, irregular, appearing broken and rivulous through the dark outer part of the wing. A series of more or less distinct blackish terminal lunules. A more or less obvious median line is outwardly oblique from the costa, darkening and obscuring the reniform, thence near to and parallel with the t. p. line, petering out toward the inner margin. Claviform not traceable in the specimen before me. Orbicular round, vague, indefinite, concolorous, traceable only by a few blackish scales. Reniform better defined, upright, blackish, narrow, somewhat lunate in shape. Secondaries white in both sexes, veins dark marked, and a vague, dusky, outer marginal shade. Beneath, primaries with a creamy tint, more or less powdery along the costa, an incomplete outer line and a vague discal lunule. Secondaries white, with a series of outer dusky lunules, and a more or less distinct discal spot. Expands 36–39 mm.; 1.44–1.56 inches.

Hab.—Glenwood Springs, Colo., September and October; Barnes, Nos. 445, 446, 447.

Three specimens, representing both sexes are before me, none of them perfect, but all of them in at least fair condition. The species is unlike any other of the genus that is known to me, and belongs to the series containing the large winged forms like *albolabes*, which this species most nearly resembles in habitus, while totally distinct in color.

Hyppa indistincta n. sp. (Pl. iv, fig. 4)—This species can be best described by comparing it with the common *xylinoides*, which it resembles in the general style of the markings and in color. In the new species the ground color is paler throughout, the gray much more even. The t. a. line is almost obsolete, and marked only as a curved line though the costal region. The short, black, basal streak in *xylinoides* is here replaced by a broad streak, which is continuous through the median space to the t. p. line. The latter is more even than in its ally, and is much less distinct. The s. t. line lacks all the powdery appearance, and has a mere indication of the prominent W-mark of the usual form. The ordinary spots are scarcely defined, but as much as can be made out, resembles those of *xylinoides*. Finally, the tufting of the dorsum of the abdomen is less prominent in the new species. Expands as in *xylinoides*.

Hab.—Mount Hood, Graef.

The single male specimen has been considerable of a puzzle to me. I have tried to make it out a variety of the common species, and have compared it with numerous western specimens, without at any time finding one like it, or near enough to it, to make it of use as an intergrade. Yet I will not be at all surprised if in the future this proves a local form, the name then representing a very distinct variety. I have held the specimen nearly a year hoping to get others like it.

Oncocnemis pudorata n. sp. (Pl. ii, fig. 8)—Head, thorax and primaries a dull, olivaceous powdery fuscous gray, with an admixture of black and white scales. Head and thorax immaculate. The primaries have the normal markings traceable, but all indefinite, interrupted and pulverulent. The half line is blackish, apparently single. T. a. line obsoletely geminate, the outer line only distinct, blackish, outwardly oblique in general course, rather evenly outcurved between the veins. T. p. line obsoletely geminate, the outer part of line indefinite, the inner outwardly denticulate on the veins. A white shade follows the t. p. line, darkening rapidly until, at the s. t. line, it forms an irregular blackish shade, which, by its greater or less contrast with the terminal space, defines the s. t. line. A blackish, interrupted terminal line. A dull yellowish line at base of fringes, which have also an interline of the same color. There is an almost upright, broad, diffuse dark shade through the median space. The claviform is vague, concolorous, defined only by a few darker scales. Orbicular round, or nearly so, slightly paler, with concolorous centre, and no very obvious defining line. Reniform yet more vaguely defined, slightly paler, centred with concolorous, broad, upright. Secondaries black, with a broad white median band, at the margin of which the black discal spot is partly visible, and through which the veins are marked with blackish. Fringes white, with a fuscous interline. Beneath, white with a broad black outer margin, a discal spot and a more or less dense black powdering at the base. Expands 28–29 mm.; 1.12–1.16 inches.

Hab.—Laggan, B. C., Agnes Lake, 6700 feet, Aug. 19, 1891, Thomas E. Bean, Nos. 458, 491.

Two specimens, male and female are before me, and I understand that Mr. Bean has others. The species belongs to the *fasciatus* group,

though the secondaries are rather white than black banded. It finds its nearest ally in *tenuifascia*, which is, however, much smaller, and in other respects quite different. From *fasciatus* it differs in that the white band of the primaries is not nearly so prominent, nor is the insect so well marked in any respects. In the pair before me the female is paler and a trifle better marked than the male, and from it the figure was made.

Oncocnemis exemplaris n. sp. (Pl. vi, fig. 8)—Ground color dark ashen gray, made up of a mixture of black and white scales. Head more blackish in front, collar with a black median line, patagiæ with black submargins. Primaries mottled, the maculation obscure, yet all the normal markings traceable. Basal line single, black, preceded by a white shade. T. a. line broad, black, followed by a white shade, both indefinite, diffuse, outwardly oblique, outcurved between the veins. T. p. line geminate, the outer line marked only on the costa and toward the inner margin; the inner line distinct, narrow, black, even, gently outcurved over the reniform and somewhat incurved below. A very evident white line accompanies that last described. S. t. line very irregular, marked by white scales, but chiefly defined by a blackish subterminal shade, in which are a few more or less evident sagittate black dashes. Except at the apex, the irregular terminal space is somewhaf lighter than the rest of the wing. A series of black terminal lunules at the base of the long fringes, which are blackish, narrowly cut with white. There is a very indefinite and diffuse median shade line. The claviform is vaguely traceable, more by the centering of white scales than by any defining line. Orbicular small, round, annulate with white, centered with blackish. Reniform narrow, upright, black and white marked, followed by a prominent white shade which extends to the t. p. line, and even lightens the s. t. space for a short distance beyond it. Secondaries black, with a broad median white shade, in which is a black discal lunule, the fringes white. Beneath, all the wings black at base, the median space broadly white; on the primaries a black band follows, the outer margin being white and blotchy; on the secondaries the black band extends to the outer margin, the fringes being white. Expands 25 mm.; 1 inch.

Hab.—Yosemite, Cala.

A single male specimen only is before me, not in the best condition; but with all the markings distinct. It is a very close ally of *pudorata*, but is smaller, of a clear gray, the t. p. line even instead of crenulated, and the diffuse whitish band is replaced by a prominent white blotch beyond the reniform. There should be no great difficulty in identifying this species.

Oncocnemis umbrifascia n. sp.—Head and thorax umber-brown, palpi paler beneath. Thorax a faintly reddish ash-gray, with brown powderings. Primaries with basal space gray, powdered with brown; median space dark umber-brown. S. t. space gray at the t. p. line, brown powdered, the brown gradually replacing the gray, so that the terminal portion of the wing is umber-brown; but more powdery and not so deep, and as even as in the median space.

Fringes brown with a faint line at base. T. a. line white, marking the anterior margin of the dark median space, outwardly angulated in the cell and reaching the orbicular, which is oval, elongate and pale powdered. T. p. line white, forming the outer or posterior margin of the dark median space; strongly and somewhat acutely exserted over the cell and almost rigidly oblique below. The reniform is upright, narrow, annulate with gray, slightly paler in shade. S. t. line wanting. Secondaries yellowish fuscous, with the outer margin darker, more smoky and the fringe paler. Beneath rather gray, finely powdered, immaculate; secondaries rather paler, the powderings coarser. Expands 28 mm.; 1.12 inches.

Hab.—Colorado (Bruce); N. W. British Columbia, Neumoegen.

Two specimens have been examined, one of them in Mr. Neumoegen's collection, the other from Mr. Bruce, now in the U. S. National Museum. The species is a very distinct one, and is allied to *atrifasciata* Morrison. It has a resemblance in color and ornamentation to *Plusia parilis*, and should be easily recognizable.

Oncocnemis refecta n. sp. (Pl. vi, fig. 11)—Ground color a pale monsegray, powdery. Head with front paler, a deep chestnut-brown line between the antennæ, else concolorous. Thorax concolorous, immaculate. Primaries uniform in color to the subterminal space, beyond which it darkens to a deeper brown, extending to the outer margin, and involving also the fringes. Basal half line single, not extended beyond the costal region. T. a. line simple, broad, distinct, black, slightly outcurved, even. T. p. line simple, black, evenly outcurved over the reniform, thence slightly irregular to the hind margin. The s. t. line is not traceable through the dark terminal space. A series of dark terminal lunules. Secondaries white at base, with a broad black outer margin, fairly well defined inwardly, the veins dusky. Beneath both wings whitish, with a blackish outer margin, powdery. Expands 31 mm.; 1.24 inches.

Hab.—Colorado; Bruce, No. 483.

A single male specimen only is before me, and I believe that Mr. Bruce took no others. The species is very simply marked, and should be easily recognized. It has a decided resemblance to the species of *Homohadena* at first sight, from the simple transverse lines, and it has no very close allies in the genus to which I have referred it, though it has all the characters of a typical *Oncocnemis*. It is best referred to the section *homogena*, though it has some resemblance to *terminalis*. There is no trace of the ordinary spots in the specimen before me; but I would not be surprised if they proved visible in other specimens when a larger material is at hand.

While this specimen has not any relative among the described species, it is certain that there are others as yet undescribed that will at some time in the future keep it company. I have a very poor specimen from the Colorado desert, given me by the late Henry

Edwards, which resembles *refecta* very closely, but is distinct. It is altogether too poor to describe, and will keep until better material is at hand.

Oncocnemis viriditincta n. sp. (Pl. vi, fig. 12)—Ground color dull luteous, with a distinct olivaceous tinge. Head darker, smoky. Collar with a strong admixture of black and white scales, forming a whitish tip. Disc of thorax also powdered with white scales, though much less prominently so. Primaries rather even in color, all the normal maculation traceable, though not prominent. Basal line simple, black, distinct. T. a. line black, distinct, a little oblique outwardly, and somewhat irregular, preceded by a few white scales. T. p. line crenulated, blackish, with a rather even outcurve, followed by an indefinite pale shade. S. t. line very irregular, marked by white scales, which are preceded by a few blackish scales; interrupted, except toward the apex. A series of small blackish lunules at the base of the fringes. The latter are pale, cut with dusky, and there is a dusky line at the base. There is a somewhat faint and irregular median line touching the reniform in its course. Claviform very small, defined by black and centered by white scales. Orbicular white, contrasting, defined by black scales, round. Reniform rather small, lunate, white, centered by the ground color. On the costa there is a series of white dots marking the inception of all the transverse lines. Secondaries smoky brown, with a blackish extra median line, and a broad but not contrasting blackish outer margin. Fringes white, with a dusky line at the base. Beneath, primaries smoky, powdery toward the costa. Secondaries powdery gray, with a dusky extramedian line and a blackish outer margin. Expands 30 mm.: 1.20 inches.

Hab.—McLean, British Columbia; Bean, No. 3676.

A single specimen only of this very distinct species is at hand, and according to Mr. Bean no others were taken. The example is a female in good condition, and has a resemblance to the *variolata* group of the genus *Mamestra*. It has no very close allies in the genus to which I have referred it, and therefore finds a place in the group *homogena*, to which all such species are assigned. The olive tinged primaries, and the contrasting white ordinary spots will serve to distinguish the species, once the genus is recognized.

Since the above was sent to the printer I have received a specimen from Mr. J. Alston Moffat, who informs me that he captured altogether four specimens near Hamilton, Ontario, many years ago, late in Summer, on golden-rod. His specimens had lost nearly all trace of the mossy-green appearance.

Oncocnemis colorado n. sp. (Pl. ii, fig. 5)—Head, thorax and primaries a bluish ashen gray. Head with a blackish fuscous transverse band on front and an admixture of scales of the same color on the vertex. Collar with a blackish band at base and a narrow fuscous band near tip. Thoracic disc with black scales intermixed. Primaries sparsely powdered with black and fuscous scales, an indefinite fuscous shade extending through the centre of the wing. T. a. line

marked only by an oblique fuscous streak over the costal region. T. p. line traceable for its entire length, single, fuscous, outwardly oblique from costa, forming nearly a right angle over the cell and inwardly evenly oblique to the hind margin, less distinct at this part of its course. The s. t. line is only incompletely marked by the interruption of a series of interspaceal black marks, which, in the fuscous central region, are very incompletely relieved by gray scales. A pale, followed by a dusky terminal line. A black streak at base, at the end of which is the small loop-like claviform, which nearly touches the t. p. line. The ordinary spots are fused, narrowly black and white ringed, the centre fuscous. Secondaries dirty white at base, with a smoky outer margin and all the veins smoky. Beneath, primaries smoky, relieved by a whitish powdery shade beyond the middle, through which is a dusky transverse line, distinct only a short distance from costa. Secondaries white, powdered with fuscous over the costal region, a more distinct smoky outer band not reaching the anal angle, a punctiform extra-median line and a small, blackish, discal lunule. Expands 34 mm.; 1.36 inches.

Hab.—Park County, Colo., Bruce.

This species closely resembles *chandleri* at first sight, and so I regarded it for some time, until abundant material of each proved their distinctness. The new species is less definitely marked, has an even t. p. line, and the series of sagittate marks preceding the s. t. line is very different. Finally, the sexual characters of the male do not at all resemble those of *chandleri*, but are very close to those of *O. augustus* figured by me on Pl. VIII, fig. 7, Trans. Am. Ent. Soc. xvi (1889). Several specimens are in collections; type in coll. U. S. National Museum, Rutgers College and Neumoegen.

Oncocnemis nigrocaput n. sp. (Pl. i, first row, fig. 4)—Head blackish brown, palpi whitish. Thorax and general color of primaries a dull, slightly yellowish ashen gray. Collar at base with a faint reddish tinge, this shade limited by a narrow, black, transverse line. Primaries without transverse lines, black powdered, all the veins marked with black scales, and a series of small interspaceal black dashes at outer margin. A black dash from base through the submedian interspace, nearly to the middle of the wing; another, beginning in the middle of the cell and extending through and beyond it to the outer margin, sometimes interrupted on the reniform. A pale line at the base of the concolorous fringe. Secondaries white, veins marked with fuscous, and a fuscous line at base of fringes. Beneath whitish, powdery, the primaries more densely so; all wings with a discal spot. Expands 32 mm.; 1 28 inches.

Hab.—Colorado, Bruce.

This species belongs to the group *atricollaris*, and seems, from the description, to be allied to *griseicollis* Grt., which is unknown to me; but which can scarcely be the present form since it is said to have the median lines marked and is not said to have a basal dash.

Two specimens, ♂ and ♀ numbered 296 and 181, respectively, collected by Mr. Bruce, are before me, and are the types.

Oncocnemis extranea n. sp. (Pl. i, second row, fig. 4)—Gray, with a fuscous admixture. Head brown. Collar with a black line at base, and a more brownish one near tip. Primaries powdered with fuscous, this powdering becoming more dense outwardly, until in the terminal region the wing is dark fuscous; this dark space crossed by black interspaceal marks. The median lines are very vaguely traceable, but scarcely describable. A dark, slender, terminal line. Fringes pale, cut with fuscous. A black dash at base in the submedian interspace, at the end of which is the concolorous claviform, outlined in fuscous and with a fuscous centre. The ordinary spots are fused into a slender, elongate macula, somewhat enlarged outwardly and black filled. Secondaries fuscous, much paler basally and with whitish fringes. There is an evident discal dot, and the darker outer region is fairly defined. Beneath, whitish powdery, with a rather broad dusky outer margin and a distinct discal dot on all wings. Expands 31 mm.; 1.25 inches.

Hab.—Colorado, Bruce.

A single good male specimen is before me. The species belongs to the *atricollaris* group, and resembles somewhat the preceding at first sight, differing markedly, however, on a more careful examination. The dusky secondaries will separate the present form at a glance. It has a casual resemblance to *Carneades hollemani*.

CEROPODA n. gen.

Eyes naked, hemispherical, large. Palpi rather small, scarcely exceeding the front. Tongue long and strong. Vestiture of front rather even, forming an obtusely truncated tuft between the antennæ. The latter in the female are simple, in the male have the joints moniliform or somewhat bead-like, laterally furnished with tufts of rather stiff hair. Front smooth. Thorax moderate, convex, vestiture mixed hair and scales, forming a very feeble anterior crest and a very little better marked posterior tuft. Legs moderate, clothed with long and rather thin vestiture. Tibiæ not spinulated, the anterior furnished at tip with an outwardly curved, divergent spine or claw; the first tarsal joint has one such claw at middle, and another at tip; the second tarsal joint has one such at tip, and the third and fourth joints have each a smaller, straight divergent spine at tip. Wings rather large, primaries widening rather regularly from base, apex pointed, outer margin quite oblique. Secondaries proportionate; vein 5 weaker than the others and from the cross-vein. Abdomen untufted, in the ♀ obtusely terminated.

The genus resembles *Oncocnemis* in some respects, and particularly the whitish forms like *cibalis* and *gracillima*. It differs from all the naked eyed genera known to me in the peculiar armature of the fore legs, in which it resembles *Trichoclea* in some respects.

Ceropoda stylata n. sp. (Pl. ii, fig. 4)—General color ash-gray, black powdery, with an ocher-yellow admixture locally. Collar inferiorly with a yellow tinge. Patagiæ margined with the same tinge toward the dorsum. Primaries with an admixture of the ocherous tinge in the basal space, the ordinary spots, along the costal region and over the t. p. line. Basal line vaguely marked only. T. a. line geminate, the inner line variably distinct, the outer usually fairly well marked. In course it is outwardly oblique, and with quite long outcurves in the interspaces. T. p. line geminate, with a long outcurve over the cell, then evenly oblique to the hind margin, making an unusually wide median space. The outer line is indefinite, the inner line blackish, slightly lunulate, the included space more whitish. S. t. line obscured, feebly marked at costa. Just below the pale apex an oblique blackish shade extends inwardly, reaching the t. p. line on vein 5. On veins 3 and 4 two pale rays cross the terminal space nearly to the margin, making a prominent W-mark. Below this the terminal space is uniformly dusky. There is a series of black terminal dots on the veins alternating with a series of black interspaceal dots on the fringes. There is a very faint median shade line. Claviform very long and narrow, almost linear, not well marked, extending across the wide median space. There is a dusky shade through the median cell, in which the pale ordinary spots are set. The orbicular is oval, oblique, whitish, the reniform is lunate, whitish, with a gray centre. Secondaries white, with a punctiform outer line and a series of dusky terminal dots. Beneath white, with coarse powderings over the costal region and toward outer margin, and an incomplete outer line on all wings. Expands 36–38 mm.; 1.45–1.52 inches.

Hab.—Colorado, Bruce; Nos. 23, 208, 99.

One male and three females are before me, all save one from Mr. Bruce. The species is easily distinguished, not only by the generic characters, but by the pale ash-gray color, the unusually wide median space, leaving almost no s. t. space, and by the prominent pale W in the otherwise dusky terminal space.

EUPOLIA n. gen.

Head moderate in size, not prominent, but hardly retracted; eyes round, naked; tongue long, but not overly stout; palpi of good size, not exceeding middle of front, second joint somewhat enlarged at the tip, terminal joint short; antennæ in the male lengthily pectinated, in the female simple. The vestiture of the front consists of scale-like hair, directed straight forward, divided into superimposed tufts by the insertion of the antennæ. Front smooth. Thorax moderate, quadrate, collar and patagiæ distinct, though not prominent; dorsum with a small anterior and posterior tuft. Vestiture composed of flattened, scale-like hair. Abdomen conic, exceeding the anal angle of the secondaries, with a small loose tuft on the basal segment only. In the female the ovipositor is lengthily exserted in the specimen before me. Legs robust, moderate in length, tibiæ not

spinose, the anterior unarmed. Primaries trigonate, stumpy in appearance, the apex somewhat marked in the male, rectangular in the female. Vein 5 of the secondaries is only a little weaker than the others.

The generic name was proposed by Mr. Grote in Mr. Neumoegen's collection, but has not been sanctioned by any description so far as I can find. I believe the genus to be a good one, hence describe it under the name proposed by Mr. Grote. It has some of the appearance of certain species of *Perigia*, but is more stumpy winged, and has the lengthily pectinated male antennæ, which distinguish the genus from anything of otherwise similar structure.

Eupolia licentiosa n. sp. (Pl. iii, fig. 8)—Ground color ashen gray, powdery. Head and thorax concolorous, immaculate; but the ground mixed with luteous scales, which lighten the tip of the collar and the disc of the patagiæ. Primaries with all the maculation confused, mottled and broken. The basal and t. a. lines, while they are indicated and apparently geminate, are yet so confounded with the powdery ground that it is impossible to describe them. The t. p. line is somewhat better marked, outcurved over the reniform and somewhat incurved below; outwardly projected on the veins, which are blackish, through the somewhat luteous tinted subterminal space. S. t. line fairly evident, luteous, rather evenly sinuate, better defined by black scales on both sides. A broken, black terminal line; a pale line at the base of the fringes, which have also a pale central line. The claviform is small, concolorous, outlined by black scales, which are not at all distinct superiorly, but form a rather obvious line inferiorly, and thereby the only decided bit of maculation on the wing. Both the ordinary spots are large, white powdered, not defined, and only incompletely traceable. Secondaries white in both sexes, with a small black discal spot; in the male there is a blackish powdering along the outer margin, which, in the female, forms an indefinite, rather broad outer band. Beneath white, powdery, with a small discal spot on both wings, and traces of an outer line; both much more distinct in the female. Expands 27.5–29 mm.; 1.10–1.15 inches.

Hab.—Utah; collection Neumoegen.

One pair in good condition are before me. With the female alone at hand, there may be some difficulty in placing the insect; but where both sexes can be examined, there will be no trouble. This is one of those obscure forms, the description of which is bound to be unsatisfactory, both to the describer and to the student who may try to use it.

Polia resoluta n. sp. (Pl. v, fig. 5)—Ground color varying from almost white to bluish ash-gray, black powdered. Head with a black frontal line. Collar with a black, somewhat diffuse line above the middle; patagiæ with a blackish submarginal line, most evident in the paler specimens. Primaries with a blackish longitudinal shade through the middle of the basal space, and a somewhat darker terminal space. A luteous blotch over the reniform. Median lines

obsolete, except through the costal region. Basal line geminate, marked through the darker portion of the basal space. T. a. marked by smoky lunules over the costa and in the cell, else obsolete. T. p. line smoky, marked over the costal region only. An angulated median shade is variably distinct, starting obliquely outward from the costa to below the reniform, which it stains inferiorly, there bent and inwardly oblique to the margin. S. t. line black, outwardly diffuse, very irregularly dentate; inwardly oblique from below the apex, inwardly dentate in the interspaces and outwardly on the veins, two long outward teeth on veins 3 and 4, reaching the outer margin, the inward tooth in the submedian interspace sending in a long black spur, reaching the apex of the claviform. A series of black, terminal lunules, and a pale line at base of fringes. All the veins are more or less evidently black marked. The claviform is long and narrow, extending from the base to the middle of the wing, concolorous or somewhat paler, margined more or less completely by black scales. Orbicular small, oval, oblique, concolorous, more or less obviously black-ringed. Reniform large, upright, somewhat excavate outwardly, black-ringed, within which is a white annulus, centrally with a luteous stain which invades the cell. Secondaries white, a little fuscous powdered toward the outer margin and with an obvious, though broken, smoky terminal line. Beneath white, sparsely black powdered, with a smoky terminal line on all wings. Expands 38–41 mm.; 1.52–1.65 inches.

Hab.—Colorado, Bruce; Nos. 263, 265.

Two specimens, ♂ and ♀, in very good condition. The female is the larger, more white, with the maculation the more contrasting. From the descr ption I thought that this might be *P. œdon* Grt., and indeed the type of maculation is very similar. In the new species it is much more contrasting, however, almost as clean cut as in *epichysis* or *theodori*, than which the new species is smaller. Unlike these others, the antennæ of the male are pectinated, as in *illepida*, which, with the same general type of maculation, has an even dark gray ground color and very distinct median lines.

Polia contadina n. sp. (Pl. iii, fig. 1)—Ground color of head, thorax and primaries white, with a bluish tinge and with black markings and powderings. Palpi smoky; head in front with a black transverse line, and a black line between the antennæ. Collar with a broad, median, black line, black tipped at the base of the well-marked anterior tuft. The disc narrowly black centered, the patagiæ with a narrow discal submargin and a broad black line at the base of the wings. Primaries to the t. a. line mottled with black scales, a short basal streak in the submedian interspace, and another along the inner margin. Basal half line distinct, geminate, the outer line with a broad outward angulation. T. a. line geminate, distinct, quite evenly oblique outwardly, the inner line interrupted and fragmentary, the outer emphasized by the dark filling of the median space. T. p. line geminate, the outer line consisting rather of a powdery shade, the inner better defined, crenulate beyond the cell and with a long inward tooth or sinus in the submedian interspace, cutting nearly through the median space. This latter is blackish smoky, except on the costa, where it is broken by white spots, and in the cell, where the ordinary spots are white and

prominent. S. t. line fragmentary, marked only by preceding and following marks and blotches which indicate a W- mark in the usual place. The preceding costal and following anal patches are the most prominent. A series of well-marked terminal lunules. Claviform concolorous, marked by a pair of narrow black lines which extend across the median space opposite the sinus from the t. p. line. The ordinary spots are large, white and contrasting; the orbicular broadly oval, somewhat oblique, the centre black dotted; reniform upright, rather indefined, with a powdery black central line. Abdomen blackish. Secondaries smoky, with a dull discal lunule and a broad, extra median shade, beyond which the margin is lightened by white scales. Beneath, blackish powdery, with a large discal spot and a paler outer marginal band on both wings. Expands 38 mm.; 1.52 inches.

Hab.—Victoria, British Columbia.

The type is a single ♂, in good condition, from Mr. Neumoegen's collection, taken by Mr. W. H. Danby, of Victoria. The species is a very distinct one, and differs from anything at present known to me. It is nearest to *P. medialis* Grt. in appearance, structure and maculation; but is smaller, narrower winged, with much sharper contrasts and less defined median lines. The antennæ are brush-like, also agreeing with *medialis* in this respect.

Polia connecta n. sp. (Pl. iii, fig. 2)—Ground color ashen gray over a faint fuscous luteous base. Head inferiorly grayish. Collar gray, with a black transverse line below the tip. Thoracic disc gray, the tuftings distinct; patagiæ with the disc whitish, broadly black margined. Primaries of the ground color, the normal markings distinct. Basal line geminate, black, the included space whitish. T. a. line geminate, the inner line indistinct, the outer black, distinct, outwardly oblique, obtusely angulated in the interspaces, except that below vein 1 there is a more prominent outward angulation; a whitish shade is included between the defining lines. T. p. line geminate, the outer line vague, concolorous, inner line black, distinct, included space whitish. The line is outcurved over the cell, and rather feebly marked, thence inwardly oblique, nearly parallel with the outer margin, and dentate to the submedian interspace, where it is inwardly curved, and followed outwardly by a somewhat prominent white shade. S. t. line narrow, whitish, rather obscurely marked, except on veins 3 and 4, where it forms a fairly distinct W. It is accompanied by a fuscous shading, preceded at about its middle by black dashes, and followed toward the apex and anal angle by blackish lines. A lunate, black, terminal line. The fringes are of the ground color, interlined and based by narrow whitish lines. In the basal space is a short black streak in the cell, a longer, more prominent streak in the submedian interspace, below which the color darkens, and a short dash on the margin. Ordinary spots large, the orbicular somewhat irregular, faintly outlined, whitish. Reniform upright, broadly kidney-shaped, black margined, inwardly annulated with whitish, the centre gray with blackish powderings. Claviform large, extending almost across the median space, defined by a distinct, narrow, black line, and inferiorly margined by a blackish shade which connects the median lines and darkens the lower portion of the median space. A median shade arises on the costa and parallel with the t. p. line to the margin. Secondaries white, with

black powderings on the veins, a blackish discal lunule, and a distinct, though narrow marginal band. Fringes blackish, with a white line at base. Beneath white, powdery, both wings with a marginal, somewhat lunate black line, and an ovate discal mark; primaries with a somewhat vague median line. Expands 40 mm.; 1.60 inches.

Hab.—Glenwood Springs, Colo., September; Dr. Wm. Barnes, No. 41.

A single male specimen only, which at first sight resembles a *Mamestra* allied to *subjuncta*.

The antennæ are serrated, the teeth set with bristle tufts. The wings are narrower than in *medialis*, and more as in *ædon*; the fringes are somewhat excised and, altogether, the species is quite distinct from any of the described forms known to me.

Hydrœcia unimoda n. sp. (Pl. i, row 2, fig. 6)—Ground color a dull powdery luteous with a reddish or purplish admixture, most marked on the thoracic disc. Head and thorax else concolorous. Primaries with a vague yellow blotch at base, and a distinctly limited patch at apex. There is a lighter purplish red powdering in the basal space, and a very much more distinct shade in the s. t. space. The terminal space is darker. Basal line geminate, brown, interrupted, sometimes almost obsolete. T. a. line geminate, brown, incomplete, irregular, almost upright, and with a wide outcurve in the space below the submedian vein only. T. p. line geminate, brown, the inner line lunulate, continuous, the outer line more even and somewhat more diffuse, included space of ground color. In course it is only a little outcurved over the cell and almost evenly oblique below that point. S. t. line lunulate, interrupted, rather even in course, more or less marked, and sometimes accompanied by a yellow shade. A pale line at the base of the fringes, which are darker than the wing. A fairly obvious, rather diffuse brown, median shade, outwardly bent between the ordinary spots, and evenly oblique inwardly, below. The ordinary spots are small, ill-defined, and very little paler than the ground color. The claviform seems obsolete in the specimen before me. Secondaries paler, more sordid luteous, with fuscous powdering, a discal lunule, a median line, a faint trace of an outer line and a dark line at the base of the paler fringes. Beneath paler, powdery, with an outer dark line, and on secondaries a small discal spot. Expands 36–39 mm.; 1.44–1.56 inches.

Hab.—Colorado, Bruce (Nos. 122, 244).

Two male specimens are before me, differing somewhat in the intensity of the ground color, but not otherwise. The antennæ are simple, with a ciliation of fine hair. The anterior tuft of the thorax is prominent, much as in *H. nitela*, while the type of maculation is not unlike that of the *rutila* series.

Hydrœcia senilis n. sp. (Pl. i, row 1, fig. 6)—General color a pale reddish luteous, scarcely rusty, yet verging on that shade. Head and thorax concolorous, immaculate. Primaries very evenly colored. Basal line vaguely traceable, geminate. The median lines are geminate, the defining lines of a darker shade of the ground color, slender and unusually separated, so that there is a very

broad included space. T. a. line upright, with an outward angulation in each interspace. T. p. line with a rather even, broad outcurve over the cell, below which it is slightly incurved. S. t. line faint, narrow, very slightly paler, or marked only by the very faint contrast between the terminal and s. t. spaces. A faintly paler line at base of fringes. The claviform is concolorous, moderate, outlined by the same brown of the median lines, by which also the ordinary spots are defined. The latter are more yellow, somewhat concolorous; the orbicular small, round, the reniform upright, broad, slightly constricted medially. Secondaries more yellowish, more fuscous in the male, slightly darker outwardly, fringes paler. Beneath, more yellowish, with pink powderings, immaculate. Expands 37–38 mm.; 1.48–1.52 inches.

Hab.—Colorado, Bruce (Nos. 26 ♂, 206 ♀).

The thoracic vestiture is somewhat loose, there is a small keel-like dorsal tuft, and in the male the antennæ are furnished with lateral tufts of bristles; but the joints are scarcely produced.

The species has a very strong superficial resemblance to *Pachnobia pectinata* Grt. (*ferruginoides* Smith), save that is larger and paler, and of course has other generic characters. Both sexes are before me; in the female the ovipositor is somewhat extruded and the valves are double.

Hydrœcia medialis n. sp. (Pl. i, row 1, fig. 5)—Ground color varying from a rusty luteous to a reddish gray over yellow, the median space of the primaries contrasting, deeper brown. Head and thorax concolorous, immaculate. Basal line wanting. T. a. line narrow, single, slightly paler, outwardly oblique to the middle, then straight to the hind margin. T. p. line distinctly paler, single, with a long outcurve on the costa, then almost rigidly oblique to the hind margin, so that at this point the median space is rather more than one-half as wide as it is on the subcostal vein. S. t. line obsolete, the terminal space darkened somewhat by brown powderings. A paler terminal line at the base of fringes, which are rather darker than ground color. The ordinary spots are somewhat vaguely defined in the dark median space, and sometimes almost obsolete. When they are best marked they are slightly paler than the surrounding brown and narrowly brown ringed; both of moderate size, the orbicular oval, oblique, the reniform kidney-shaped. The claviform is wanting in the specimens I have seen. Secondaries yellowish, powdery, somewhat darker outwardly, fringes with a rosy tinge. A somewhat indistinct median line. Beneath pale, with reddish powderings. A dull fuscous outer line and a discal lunule on all the wings. Expands 43–45 mm.; 1.72–1.80 inches.

Hab.—Colorado, Bruce (No. 138).

This species is easily recognized by the contrasting dark median space, in this unlike *obliqua*, which it otherwise resembles most nearly in appearance. Both sexes are before me, and other specimens are in collections. I believe that Mr. Bruce took a number of specimens some years ago; but I have hesitated about describing it, fearing that it might be one of the species with which I was not acquainted.

There is a sharp crest behind the collar, keel-like and simple, and the antennæ of the male are brush-like, *i. e.*, there is a conic lateral process to each side of each joint, which is furnished at tip with a tuft of bristles.

Leucania heterodoxa n. sp. (Pl. v, fig. 7)—Ground color dull luteous. Head paler, gray. Collar grayish white, with a central blackish line, above which follow a narrow gray line, a broad line of ground color, and a pale tip. Patagiæ submargined by black scales, and with a blackish shade at the base of the wing. Primaries shaded with whitish gray over the costa. All the veins white marked, interspaces with darker lines, so that the wing has a strigate appearance. A smoky shade on each side of the median vein, emphasized by a variably evident dot in the cell at its end. This smoky shade also obtains in the s. t. space on the costa, in an oblique triangular patch extending from the margin below the apex to the t. p. line on vein 3. A smaller cloud opposite the anal angle. T. p. line distinct, consisting of a series of black venular dots. A series of black interspaceal terminal dots. A pale line at the base of the dusky fringes. Secondaries smoky, paler basally, veins smoky Beneath paler, powdery, primaries smoky on the disc, and with an incomplete, punctiform outer line. Expands 31–34 mm.; 1.25–1.36 inches.

Hab.—Sierra Nevada, California, Edwards; Laggan, British Columbia, 5000 feet, July 2, Bean, No. 504; St. Anthony Park, Minn., Lugger.

Four specimens, ♂ and ♀, all in good condition. The species is perhaps nearest to *adonea*, but decidedly smaller, less contrasting; secondaries are also more whitish.

Leucania minorata n. sp. (Pl. v, fig. 11)—Ground color dull luteous. Head and thorax immaculate, with an olivaceous tinge. Primaries with a reddish tinge, all the veins pale, the interspaces strigate with pale lines. Median vein relieved more prominently by a smoky shade below it. A small black dot in the cell at the end of the median vein and similar dots on veins 2 and 5, indicating the t. p. line. A series of minute terminal dots. Secondaries densely black powdered over a whitish base, the veins more prominently relieved, fringes white. Beneath whitish, black powdered, primaries with disc smoky, faintly showing a large discal spot. Secondaries with an interrupted outer band and a distinct discal spot. Expands 31–32 mm.; 1.24–1.28 inches.

Hab.—California; Oregon.

Three male specimens are before me. They most nearly resemble *oxygale* Grt., but are smaller throughout, the ground color reddish, the secondaries darker, and the male characters are distinctive. A description of these characters will be reserved until I can prepare a revision of all the species of the genus.

Leucania roseola n. var. **farcta** (Pl. v, fig. 9)—Resembles *farcta* in all particulars, save that instead of being a very pale luteous, the ground color is distinctly reddish, and the white of the secondaries is tinged with yellowish. Expands as in the type form.

Hab.—British Columbia.

One male specimen from Mr. Neumoegen's collection. I should not be much surprised if larger material and more critical examination of structural characters proved this a distinct species. At present I can find nothing to separate it from the Californian *farcta*, save the color; but this is quite marked enough to authorize a varietal term in this genus.

Leucania imperfecta n. sp. (Pl. v, fig. 10)—Ground color a dull luteous. Collar lined, patagiæ blackish at base of wings. Primaries clouded with smoky; most obviously so over the costal region beyond the middle, along the internal margin, beginning a short distance from base, over the median vein and beyond it, filling the entire terminal space. The streak along and over the median vein is the darkest part of the wing, and at the end of the wing it is relieved by a white mark extending on the vein over the base of veins 3 and 4. A black dot in the cell at the end of the median vein. A series of small, black, venular dots indicate the t. p. line. All the veins are smoky, and in the interspaces above vein 3 there are brown streaks shortening rapidly toward the apex. Fringes smoky. Secondaries semi-transparent, whitish at base, veins smoky, a smoky powdering outwardly forming a vague dusky outer margin. Beneath, primaries smoky, veins darker. Secondaries whitish, powdery over the costal region. Expands 35 mm ; 1.40 inches.

Hab.—Arizona, Neumoegen, one male.

The species has a decided resemblance to *subpunctata* Harvey, with more the maculation of *phragmatidicola*. The primaries are darker than in any species known to me except *unipuncta*, but are not powdery.

Leucania stolata Grt. (Pl. v, fig. 8)—Ground color a pale straw-yellow, lighter than *pallens*. Collar dusky tipped, and with a dusky line near tip. Patagiæ with a dusky powdering near margin. Primaries with the median vein white, a short spur marking the inception of vein 2, while veins 3 and 4 are white a little distance from their point of inception. A smoky brown shade accompanies this line inferiorly, and extends beyond the cell as an elongate dusky triangle between veins 4 and 6, fading out before the margin is reached. A less distinct brownish shade extends along the inner margin, and a vague smoky tinge is apparent over the costal and apical region. Between the veins, beyond the cell, are faint, darker longitudinal lines, giving the wings there a feeble strigate appearance. A row of small black terminal dots and a small dot in the cell at the end of the median vein. Secondaries white. Beneath white, feebly irrorate, primaries with a somewhat yellowish tinge. Expands 32 mm.; 1.28 inches.

Hab.—Arizona, Neumoegen.

A single female from Mr. Neumoegen's collection is marked "*Heliophila stolata* Grote Type." I cannot find any description of the species; but present the above, under Mr. Grote's name, as the species seems to be a good one. The species is quite different from any other known to me by the straw-colored primaries and clear white secondaries.

Adipsophanes egestis Grt. (Pl. v, fig. 14)—Ground color rusty luteous, with red-brown powderings Head and thorax concolorous. Primaries with an admixture of black scales in the powdering, somewhat darkening the median space. All the maculation obsolete. The median lines are indicated only by the slight contrast in color between the median space and the rest of the wing. The veins are darker, and there is a tendency to a brown strigation of the interspaces most obvious outwardly. A series of dusky terminal lunules. Fringes rather long, dusky at base, with a narrow, pale, median interline, beyond which they are cut with reddish luteous. Secondaries soiled yellowish white, smoky powdered outwardly; fringes white. Beneath whitish, powdery, most obviously so on primaries, which are somewhat darker. Expands 26 mm.; 1.05 inches.

Hab.—Prescott, Ariz., Neumoegen.

A single female specimen in fair condition in Mr. Neumoegen's collection is marked "*Adipsophanes egestis* Grote Type." I know of no description, and hence offer the above, under Mr. Grote's name, to supplement what Mr. Grote may have published elsewhere.

Caradrina mantalini n. sp. (Pl. v, fig. 13)—Ground color sordid smoky fuscous, with a slight glisten. Thorax paler, with a reddish gray tinge on the dorsum. Primaries above the median vein and outwardly to the t. p. line, pale luteous, powdery, so as to be not greatly contrasting. All the veins blackish marked. Of the transverse line the t. p. only is marked, punctiform, single, unusually removed outwardly, parallel with outer margin. Ordinary spots indefinite, orbicular very long and narrow, decumbent, dusky centered, and with a faint dusky outline, the intervening space luteous. Reniform moderate, upright, dusky, without distinct outline. Secondaries glistening, soiled yellowish white, veins darker. Beneath dirty whitish, powdery, with traces of a common outer line. Expands 25–28 mm.; 1.00–1.12 inches.

Hab.—Colorado, Bruce, No. 386; Glenwood Springs, Colo., September, Dr. Barnes.

Two female specimens, the larger from Dr. Barnes, neither of them perfect. The species is an ally of *C. miranda* Grt., which is perhaps not strictly congeneric with the other species. The primaries are perhaps even more parallel and more rounded apically than in *miranda*.

Caradrina punctivena n. sp. (Pl. v, fig. 12)—Ground color a pale reddish gray over a yellowish base. Head and thorax immaculate. Primaries darker below the median vein and vein 4, the difference in color distinct, though scarcely contrasting. All the veins marked with black and white scales, the former predominating. A blackish streak extends from the base through the submedian space nearly to the middle of the wing, above which is a pale streak, indicating the claviform, and this is the only trace of the usual ornamentation. A broken dusky line at the base of the rather long dusky fringes, which are paler cut. Secondaries sordid whitish luteous, veins dusky. Beneath whitish, powdery, without other maculation. Expands 28–29 mm.; 1.12–1.16 inches.

Hab.—Colorado, Bruce, No. 279; McLean, British Columbia, July 24th, at light; Bean, No. 3673.

One male and one female; the former somewhat rubbed. This also is an ally of *C. miranda;* but yet more nearly related to *mantalini,* from which it differs by the larger size, difference in color, and absence of the ordinary spots and all transverse lines.

Tæniocampa ferrigera n. sp. (Pl. v, fig. 6)—Ground color rather bright red-brown on a somewhat rusty base Head and thorax concolorous, vestiture hairy, dense, but somewhat fluffy or woolly. Primaries powdery, the transverse maculation a deeper red-brown. A white costal spot at the inception of the basal and t. a. lines and of the median shade; three small white costal dots in the s. t. space. Basal line geminate, red-brown, the included space slightly paler; slightly outcurved. T. a. line geminate, the inner line scarcely traceable, except on the costa; outer line brown and rather even, the line as a whole outwardly oblique and with a slight outcurve. T. p. line geminate, the outer line punctiform, consisting of venular dark, followed by white dots; inner line feebly lunulate, feebly bisinuate. Beyond the white venular dotlets the s. t. space darkens to the s. t. line, which is thereby emphasized and is pale, lunate and slightly irregular. A series of small, interspaceal, dark terminal lunules, fringes concolorous. A diffuse, slightly darker red-brown, almost upright median shade. Claviform wanting. Orbicular obsolete. Reniform moderate, upright, dusky, not distinctly defined. Secondaries paler, a faint carmine flush over a yellowish white base, black powdered, in the female very densely so. Beneath whitish, with a reddish flush, irrorate with black scales; a distinct discal spot, extra median line and scalloped terminal line black. Expands 36–39 mm.; 1.44–1.56 inches.

Hab.—Vancouver, Neumoegen; Oregon, Dyar.

Three specimens, one ♂ two ♀ are before me; one ♀ from Mr. Neumoegen is in very good condition. The Oregon specimens were taken at light, and the ♂ is fair, the ♀ ragged.

The male antennæ are pectinated, and the insect thus belongs to the group *incincta,* and is most nearly related to *pectinata.* It differs, however, in the entire outer margin, the totally different ground color, and the shorter, less lengthily pectinated male antennæ. The insect is quite robust, the loose thoracic vestiture enhancing the plumpness of its appearance.

Xylomiges cognata n. sp. (Pl. v, fig. 3)—Ground color ash-gray, with a somewhat localized tinging of sordid luteous. Front of head smoky, with an indefinite blackish line. Collar with a blackish line. Patagiæ with a submarginal black, rather diffuse line, and a black margin at base of wings. Primaries powdered with blackish, most densely in basal space, over the costal region, along inner margin in median space and in the terminal space. Basal line geminate, blackish, included space pale, a little angulated on the median vein. T. a. line geminate, interrupted, inner line slender, smoky, outer line black, a little bent in the cell, outcurved in the submedian interspace, and below vein 1. Included space pale. T. p. line geminate, interrupted, outer line marked in the costal region and near inner margin, inner line denticulate, blackish, bisinuate.

S. t. line paler gray, rather even, with little outward teeth on veins 3 and 4, preceded by a more or less marked blackish shade, broken into spots, and followed by a blackish shade which may be broken into spots or may be continuous and fill much the greater part of the terminal space. A series of black terminal lunules, preceded and emphasized by a crenulated white preceded line. Fringes gray, marked with fuscous lunules. A vague, incomplete, median shade line, darkening the cell between the ordinary spots, thence obsolete, to reappear again below the claviform. Claviform moderate or small, wide, black margined, with a luteous tinge. Orbicular large, round, black-ringed, concolorous or paler. Reniform large, broadly kidney-shaped, black-ringed, concolorous or paler, centrally with a darker lunule. Secondaries white, with a more or less evident, but always faint luteous tinge. A black discal spot, a more or less continuous powdery median line and a broken blackish terminal line. Beneath white, powdery. All wings with a distinct, round, blackish discal spot, a more or less complete extra median line, and a broken terminal line. Expands 34–36 mm.; 1.36–1.44 inches.

Hab.—Vancouver (Neumoegen); Oregon (Strecker); Colorado (Bruce, No. 311).

Three male specimens are before me, and I have seen others. The antennæ are pectinated, and the species is thus related to *hiemalis* and *peritalis*, most nearly to the latter. In fact, I considered it a variety at first, and so named it for Messrs. Strecker and Neumoegen. Additional material shows no nearer approach to typical *peritalis*, but emphasizes the difference, and I must therefore regard it as distinct. It differs in the much more evident transverse maculation, the want of a black basal dash, the sordid tinging in the ground color, and, finally, in having the antennal branches somewhat longer. Withal the relationship is not distant.

Xylomiges candida n. sp. (Pl. v, fig. 1) –Ashen-gray with black powderings. Collar with an inconspicuous blackish median line. Patagiæ with a broader submarginal line, dorsum with blackish powderings intermixed. Primaries with all the transverse maculations present. Basal line geminate, black with rather long, acute, outward angulations in the costa and in the submedian interspace. Above the submedian vein the basal space is quite considerably darkened by the black powderings. T. a. line geminate, the inner line lost in the dark powderings of the basal space, outer line black, as a whole upright, with a small outward angulation over the costa, a more prominent one in the submedian interspace, and a moderate outcurve below vein 1. T. p. line geminate, outer line even, rather indefinite, inner line crenulate; as a whole the line is rather evenly bisinuate, the included space paler than ground color. A broad, somewhat diffuse black median shade extends obliquely from costa through the cell, darkening the reniform inferiorly and then forming a broad black margin to the inner portion of the t. p. line. S. t. line even, faintly marked, paler, emphasized by a series of preceding black spots. Fringes irregular, smoky, a series of small black dots at base, and with small pale rays over the veins, not extending to the margin. The veins are all more or less black marked. Claviform

small, black margined, else concolorous. Orbicular moderate in size, round, black ringed, with a small central black dot, else concolorous. Reniform rather large, upright, inferiorly dilated, not well defined, obscured by the median shade, and by a small brownish central blotch. Secondaries white, with an outer line of black venular dots, and a smoky terminal line which does not extend to the anal angle. Beneath white, black powdered, more evidently so on costal margin and in apical region of all wings. All wings with a discal spot, a punctiform outer line, and a series of terminal dots, black. Primaries with the outer half of the wings smoky. Expands 38 mm.; 1.52 inches.

Hab.—Vancouver.

A single perfect male, from Mr. Neumoegen's collection. The species has serrate male antennæ and narrow, subequal primaries, and is therefore a close ally of *dolosa*, than which it is larger, quite different in the predominating gray shade, and with the maculation much more distinct. The secondaries also are pure white in the new species. In fact, while black is the predominating shade in *dolosa*, the markings picked out in white, the exact reverse is the case in *candida*. There should be no difficulty in recognizing the species.

Xylomiges indurata n. sp. (Pl. iv, fig. 7)—Ground color ashen gray; varying from rather light whitish to a deep bluish or blackish tint. Head and thorax concolorous, the collar with a vague, almost obsolete median transverse line, below which there is in some of the specimens a faint rufous tinge. Patagiæ indistinctly submargined in black. Primaries with the veins black marked The median lines are obsolete. S. t. line interrupted, the spots lunate, somewhat pale reddish, preceded by deep brown shadings. Claviform moderate, concolorous, rather faintly outlined by blackish scales. Orbicular oval, decumbent, outlined by a gray or reddish annulus, sometimes scarcely traceable. Reniform large, indefinitely outlined by pale or reddish scales, centrally constricted and inferiorly dilated; a vague, indefinite, and more or less obvious reddish brown shade usually lightens up the reniform centrally and extends outwardly a little distance. Secondaries white, more or less irrorate with black scales, usually darkening the veins and forming a series of terminal lunules; a distinct discal lunule. Beneath whitish gray, varying to bluish gray, powdery; secondaries paler, a common broken outer line and a discal spot on all wings. Expands 35–40 mm.; 1.45–1.60 inches.

Hab.—Colorado, Bruce, Nos. 523, 528, 542.

I have seen two males and two females, of which three from Mr. Bruce are before me. The antennæ are serrated and bristled, the primaries narrow and pointed, and the species is hence allied to *curialis* and *dolosa*, most nearly to the former. In *curialis* the transverse lines are all traceable, usually distinct, and the secondaries are pure white in the male; in the new form the markings are almost entirely obsolete, the s. t. only being at all distinct, and the secondaries are of a dirty white, powdered with coarse black speckles.

No two of the specimens which I have seen are alike, and yet the variation is rather in depth of ground color and the relative distinctness of the slight markings, than in any real difference of ornamentation.

Xylomiges pulchella n. sp. (Pl. v, fig. 2)—Ground color a fine carneous gray, powdered with reddish and black scales. Head darker in front, with a blackish transverse line and the sides of the palpi blackish. Collar unlined, patagiæ with a submarginal powdery blackish line. Primaries with basal space black filled, except above the basal streak and to the basal half line, where the ground color obtains. Subterminal and terminal spaces except for the gray apical patch, also black-filled. A red-brown shade over the reniform to the t. p. line. All the lines well marked. Basal line geminate, brown, extending to the black basal streak in the submedian interspace and with it inclosing the concolorous basal patch. T. a. line geminate, brown, the inner portion merged into the dark basal space, as a whole with a slight outcurve, with small outcurves in the interspaces. T. p. line geminate, the outer line merged in the dark s. t. space, the inner brown, very little bent on the veins, the line as a whole with a broad outcurve over the cell and a rather shallow incurve below. S. t. line pale gray, slender, very even, starting from the pale apical spot and contrasting prominently with the black ground through which it runs. A gray line at base of the fringes, which are black and dentate. Through the terminal space the veins are pale marked, and the fringes are cut with broader gray-brown opposite these veins. There is a rather faintly marked, irregular, brown, median line. The claviform is concolorous, brown ringed, short but very wide. Orbicular concolorous, oval, oblique, black-ringed, and with an interior pale annulus. Reniform large, upright, somewhat constricted at middle and dilated inferiorly. It is black margined, followed by a pale line inwardly; outwardly the pale line alone defines it. It is suffused with reddish centrally and becomes blackish filled inferiorly. Secondaries whitish, with a faint reddish yellow tinge, veins dusky, the powdering becoming more obvious outwardly. A distinct smoky discal lunule. Beneath whitish, black powdered, with a narrow, black, outer line, and a large discal spot on all wings. Primaries with the s. t. space partly black-filled. Expands 37 mm.; 1.48 inches.

Hab.—Vancouver.

A single perfect male from Mr. Neumoegen's collection is before me. The species is the most beautiful thus far described in the genus. It is an ally of *rubrica* Harvey, with much the same ground color and general type of maculation; but easily distinguished by the complete transverse lines and the contrasting black basal and outer spaces. [Other specimens have since come to hand.]

Pleroma apposita n. sp. (Pl. i, second row, fig. 1)—Contrasting black and white. Head, front blackish, vertex white. Palpi reddish fawn color, and this is the prevailing tint of the underside, extending to the sides of the basal segments of the abdomen. The upperside of the fore legs is darker, tip of tarsal joints white ringed. Collar white at base, superiorly black. Thoracic disc black.

Abdomen with dorsal tufts and apical segments black, the latter tipped with white scales, basal segments laterally fawn-gray. Primaries black, the basal space above the middle and the costal region nearly to the s. t. line white, crossed by a black band representing the t. a. line; a second representing the median shade above the space between the ordinary spots; and a third representing the t. p. line. The median lines except as thus represented are obsolete. The ordinary spots are not defined and are white, merging into the costal region. The claviform is vaguely traceable. The s. t. line is white, interrupted, very strongly and irregularly dentate. Fringes white, cut with smoky brown spots. Secondaries smoky fuscous, paler basally, fringes whitish, with a smoky interline. Beneath, primaries smoky, black powdered, more densely so outwardly; a blackish outer line on both pairs of wings. Expands 34 mm.; 1.32 inches.

Hab.—Victoria, British Columbia.

The unique male type is with Mr. Neumoegen. The species is so contrastingly marked that there can be no possible difficulty in identifying it. It is more nearly related to Mr. Grote's *Valeria conserta*, which also belongs to this genus, than it is to my *obliquata*. It is a very pretty insect indeed.

Calocampa brucei n. sp. (Pl. i, second row, fig. 2)—General color bluish ash-gray. Head blackish inferiorly, alternating buff and black superiorly. Collar yellowish to buff, with black and brown lines surmounting, gray at tip. Thoracic disc nearly concolorous, very slightly darker in shade than the lighter portions of the primaries. Primaries with blackish strigæ and with the veins narrowly black marked. A dusky shade of variable distinctness along the internal margin, not extending to the hind angle. A brownish or smoky shade extends along the costa to the terminal space and invades the cell between the ordinary spots. A pale, slightly pinkish shade extends beyond the reniform to the s. t. line, contrasted outwardly by a black streak above vein 5. Two triangular dusky shades are in the terminal space and the fringes are dusky. The transverse lines are incomplete and partly obsolete. The basal line is faintly indicated on the costa only. The t. a. line is indicated by geminate dusky streaks on the costa, by a geminate, diffuse lunule in the cell, and by an oblique blackish streak below the submedian vein. The t. p. line is faintly marked over the costal region only. The s. t. line marks the extent of the dusky costal shade, is visible again at the end of the black streak above vein 5, and again, very vaguely towards the internal margin. The claviform is wanting. The orbicular is oval, upright, concolorous, geminately black ringed, the inner ring less definite and with a brownish shade. The reniform is large, upright, centrally constricted, outwardly dilated superiorly. It is narrowly black margined inwardly, brown marked outwardly and centrally with a pale discal blotch. Secondaries smoky, with a darker line at the base of the fringes. Beneath smoky, with a reddish shade, the veins black powdered, both pairs with a discal spot, less evident on the primaries, and with a series of terminal black lunules. Secondaries also with an outer brown line. Expands 50 mm.; 2 inches.

Hab.—Colorado, Bruce.

This species most nearly resembles some forms of *cineritia*, a rather pale form of which occurs in Colorado, and as such I was at first

inclined to consider it. Mr. Bruce has, however, taken a number of specimens at high elevations, all of them alike, and has convinced me that we have to do with a good species, which I take great pleasure in dedicating to him.

RANCORA n. gen.

Eyes naked, with rather sparse, hairy lashes. Front smooth, with straight, projecting, scaly and hairy vestiture, forming rather well-marked superimposed tufts; between the antennæ the vertex is clothed with stiff, divergent hair. Tongue long, stout. Palpi short, stout, very slightly exceeding the front. Antennæ of the male with conic serrations, which are set with tufts of bristly hair. Thorax robust, with hairy clothing forming a somewhat improminent posterior tuft. The collar is rounded, somewhat prominent centrally, but scarcely hood-like as in *Cucullia*. The legs are stout, clothed with long hair, and the tibiæ are not spinose. Primaries elongate with pointed apices and oblique outer margin, yet scarcely lanceolate. Secondaries rather small; vein 5 much weaker than the others, and from the cross-vein. Abdomen conic, that of the male well exceeding the anal angle of the secondaries, and furnished with distinct, though loose dorsal and smaller lateral tufts.

The genus is related to *Cucullia*, from which it differs in the form of the primaries, which are not lanceolate; in the collar, which is not hood-like, and in the male antennæ, which are serrate instead of simple. It is not unlikely that *Cucullia serraticornis* may be referred here; but I have no sufficient number of specimens for comparison.

Rancora strigata n. sp. (Pl. i, row 1, fig. 1)—General color ash-gray. Head, with vertex, rather darker, and with a blackish transverse line below the antennæ. A distinct black line at base of collar, which is tipped with mouse-gray. Thorax with the dorsum somewhat darker, becoming blackish posteriorly. Abdomen mouse-gray. Primaries bluish ash-gray, all the veins black lined, the median lines incomplete. The t. a. line is single, vaguely marked on costa, with a distinct long outward tooth in the submedian interspace, and a shorter but similar tooth below the submedian vein. A longitudinal black line extends from the base through the submedian interspace to the apex of the tooth of the t. a. line and beyond that point less distinctly to the outer margin. The t. p. line is faintly indicated on the costa and is obsolete beyond that until it reappears as a lunate blackish mark in the submedian interspace, below which it runs, inwardly oblique to the inner margin. A series of blackish interspaceal streaks begins at the apex, the marks increasing in length to the fourth from the apex, which runs from the end of the cell to the outer margin; below this two marks are short, the third running from the lunule of the t. p. line to the outer margin,

above the line which runs through this space from the base of the wing. The ordinary spots are vaguely indicated. Between the tooth of the t. a. line and the lunule of the t. p. line in the submedian interspace there is an indefinite whitish blotch. Secondaries white, semi-transparent, and with a vague, irregular smoky outer border. Beneath, the primaries are powdery mouse-gray, the secondaries whitish, powdery, with a distinct black streak through the median cell from the base to the cross-vein. Expands 44 mm.; 1.76 inches.

Hab.—Victoria, British Columbia.

A single male specimen in Mr. Neumoegen's collection is the type, and from it the figure was made. The species is a strongly marked one, and should not be difficult of recognition.

Cucullia albida n. sp. (Pl. iv, fig. 9)—Ground color white, with a very faint yellowish tinge. Palpi smoky at sides; vertex smoky, collar smoky at base, limited by a black line; half way to the tip is a narrow smoky line, and the tip is rather broadly margined by a smoky shade. Thoracic disc and the dorsal tufts of the abdomen smoky. Primaries with the veins smoky or blackish, the transverse lines obsolete, marked only below the internal vein and by indefinite costal shades. A black longitudinal line at base, and beyond it a clearer white elongate spot, like a claviform; but without defining line. A series of rather broad interspaceal dashes at outer margin, and the fringes cut with smoky. Secondaries whitish with a faint smoky tinge, the veins darker, the fringes white. Beneath, white with gray powdering; secondaries with a short, blackish, basal dash in the cell, extending nearly to a discal lunule. Expands 40.5 mm.; 1.62 inches.

Hab.—Colorado; Bruce, No. 538.

A single male specimen, somewhat rubbed. The antennæ have the joints distinctly, if not strongly, serrate; the serrations conic, and furnished with bristly tufts. The thoracic clothing is somewhat more loose than usual, and the body is more robust. This is totally unlike any other of our species, and is hence easily recognized.

COPICUCULLIA n. gen.

Has in all respects the habitus of *Cucullia*, differing primarily in the presence of a long, curved claw at the end of the fore tibia. The front bulges, is roughened in one species, furnished with a distinct protuberance in another, and is almost smooth in a third. The type of maculation is essentially that of *Cucullia*.

This generic term replaces *Cleophana* as used by Mr. Grote for our species *eulepis* and *antipoda*. The European species of *Cleophana*, an opportunity to examine which I owe to Mr. Neumoegen, differ very materially from the two American species above referred to in habitus, in wing form, in having very little resemblance to *Cucullia*, and in some details of structure.

I do not consider *Copicucullia* a very distinct genus; but it is distinguishable by an obvious structural character, which becomes important where so great a uniformity exists in the species generally. Besides the described species above mentioned, two new forms are referable here.

Copicucullia astigma n. sp. (Pl. iv, fig. 8)—Ground color ash-gray with blackish irrorations; head smoky brown. Collar with a transverse black line, above which is a slightly luteous shade, followed by a darker gray shade line before tip. Thoracic disc scarcely dusky in the male, only slightly in the female. Primaries with all the veins black marked. Internal margin blackish. A black line from base through the submedian interspace, broadening to an oblique streak above the anal angle. Blackish streaks are in the interspaces between veins 4 and 5, 6 and 7, and 8 and 9. An interrupted, dusky, terminal line. Fringes smoky, with a whitish interline. Secondaries smoky fuscous, paler and semi-transparent in the male, veins and outer margins darker, fringes more whitish. Beneath pale, even powdery gray. Expands 40–41 mm.; 1.59–1.63 inches.

Hab.—Colorado, Bruce.

In this species the ordinary spots and all the transverse maculation are wanting, and the black streak over the anal angle is the only prominent feature in the wing. The antennæ of the male are entirely simple, while the front has a distinct truncated protuberance.

Copicucullia propinqua n. sp. (Pl. iv, fig. 11)—Ground color a bluish ash-gray; head darker, with black and blackish transverse lines. Collar with a prominent black median line, above which is a faint luteous shade and between this and the tip gray and blackish shades alternate. Thoracic disc only slightly darker. Primaries with all the veins dusky. T. a. line single, smoky brown, only a little outwardly bent between veins except beneath the internal, where it forms a long outward tooth, the return line forming a prominent black streak on the internal margin. T. p. line indicated on the costa and vaguely traceable beyond, becoming prominent in the submedian interspace, where it forms a black curved or crescent-shaped mark, beyond which a broad, oblique, angulated streak extends to the outer margin. Claviform extending across the median space, incompletely outlined, but suffused by a pale luteous shade, which makes it prominent. Ordinary spots distinct. Orbicular round, black ringed, annulated with luteous and gray centered. Reniform moderate in size, broad, black-ringed, incompletely annulate in luteous, centre smoky. An interrupted black terminal line. Two rather indefinite, oblique paler gray shades in the subterminal space. Secondaries in the male whitish, with smoky veins and outer border, and whitish fringes, in the female smoky, with darker veins and white fringes. Beneath whitish, powdery, darker, more gray in the female. Expands 41.5–44 mm.; 1.66–1.76 inches.

Hab.—Colorado; Bruce, Nos. 107 and 539, 1 ♂, 1 ♀.

The antennæ of the male are simple, and in both sexes the front is roughened; in the female more protuberant, almost tuberculate.

The difference in size between the sexes is quite marked; but may not be constant with larger material. So the female is more sordid, much less distinctly maculate than the male.

In general type of maculation the species resembles *antipoda* Strecker, which is, however, a much paler species throughout, a whitish, creamy gray replacing the dark bluish ash-gray of the new form.

Alaria felicitata n. sp. (Pl. vi, fig. 1)—Ground color rosy red and olivaceous luteous. Front of the head lighter yellowish, vertex red. Collar red, light olivaceous tipped. Dorsum of the thorax olivaceous luteous. Abdomen with whitish hair at base. Primaries at base red, this color extending along the costa and internal margin, to the location of the terminal line; on the disc gradually merging into the olive tinge, which becomes more marked gradually and extends to the outer margin. The ordinary lines and spots are all obsolete. Secondaries even blackish, with white fringes. Beneath, primaries blackish, powdered with red along the costa, the fringes light yellow. Secondaries white, with rosy powderings along the costa. Expands 25 mm.; 1 inch.

Hab.—Southwestern Utah, Weidt; collection Neumoegen.

A single female specimen only is before me at the present time; but at least one other is in the U. S. National Museum, also from Utah, if I recollect aright. In type of maculation the new species is a rather close ally of the Eastern *A. florida;* but the colors are much more sordid, the secondaries are black, and the size is quite obviously smaller. There can be no difficulty in the recognition of this species.

Unlike the Eastern species, the form has the front quite bulging and the edge of the clypeus turned forward, though scarcely forming a projecting plate.

Oxycnemis sectilis n. sp. (Pl. vi, fig. 3)—Ground color a very pale ashen gray. Head chocolate-brown, and scales of the same color are intermixed in the vestiture of the collar. Primaries with all the markings defined by scales of the same chocolate-brown. T. a. line single, even, with a moderate outcurve. T. p. line single, even, with a broad outward angulation over the reniform, and a distinct incurve below. S. t. line marked only by a dusky s. t. shade, which is more distinct near the costa. A distinct, interrupted, terminal line. Claviform large, outlined in brown, included space more whitish. Ordinary spots large, brown ringed, whitish centered. Orbicular transversely oval, reniform upright, broad, scarcely constricted in the middle. A somewhat vague median shade darkens the outer portion of the median space. Secondaries white, immaculate. Beneath, primaries whitish, powdery, secondaries white. Expands 21 mm.; .84 inches.

Hab.—Texas.

A single specimen only is before me at present; but the insect is represented in several of the collections, and by more than one specimen. I have had several for examination, and found no variation. The insect differs a little in habitus from the generic type; but is correctly referred I think. The anterior tibia is as described for the genus, save that there is a short inner as well as a longer outer claw-like spine. The markings are remarkably neat and clean, and though there is nothing striking, yet everything is well defined.

Oxycnemis perfundis n. sp (Pl. vi, fig. 6)—Ground color white, with a faint yellowish tinge, more or less clothed with luteous scales, which makes the appearance darker or lighter as the case may be. Head and thorax concolorous, immaculate. Primaries with all the markings obscured and incomplete. The basal and t. a. lines are marked by blackish dots on the costa only: the t. p. line is single, brown, slender, even and obliquely outcurved over the costal region, with small crenulations, and parallel with the outer margin below the cell. In some specimens the line is visible only through the costal region. S. t. line obsolete, marked only on the costa by a dusky patch in the s. t. space. Fringes white. The claviform is indicated in one specimen by a few black scales. The ordinary spots are vaguely traceable as slightly paler macula of moderate size; but not defined in any way. Secondaries white, shining, with a faintly marked outer border, the fringes white. Beneath white, immaculate, the primaries with a faint yellowish tinge. Expands 19–20 mm.; .75–.80 inches.

Hab.—Nueces River, Texas; Southern Texas.

I have seen quite a number of this little species, and have had specimens for some time. It is easily recognizable, and is remarkable for the very much abbreviated anterior tibia, which is shorter than the curved claw at its tip, and much shorter than the first tarsal joint. The insect combines in its appearance the features of an Acontiid, and of an Heliothid.

Oxycnemis nivalis n. sp. (Pl. vi, fig. 5)—Ground color white, the head with an ocherous tinge in front; disc of thorax and primaries with a faint grayish tinge; secondaries snowy, immaculate. The primaries are also immaculate, only the faintest trace of an oblique median shade being visible. Beneath, primaries blackish, the margins white, the secondaries pure snow-white. Expands 26 mm.; 1.05 inches.

Hab.—Texas.

This is another easily recognizable form. The anterior tibiæ are short and broad; but not so much abbreviated as in *perfundis*, and there is a small inner claw, which is not present in the former species. The type is a perfect female from Mr. Neumoegen's collection. I think I have seen another in the National Museum material.

EXPLANATION OF PLATES.

PLATE I.

The figures in this plate are not numbered, and the names are here arranged as are the figures on the plate. This was first published in "Entomological News," vol. iii, No. 10, where references can be found to the other than new species figured.

Rancora strigata n. sp.
Noctua flavotincta n. sp.
Mamestra fusco-lutea n. sp.
Pleroma apposita n. sp.
Calocampa brucei n. sp.
Acronycta n. sp.
Homohadena figurata Harv.
Oncocnemis nigrocaput n. sp.
Hydræcia medialis n. sp.
Hydræcia senilis n. sp.
Oncocnemis extranea n. sp.
Carneades conjuncta Smith.
Hydræcia unimoda n. sp.
Peridroma nigra n. sp.
Caradrina meralis Morr.
Carneades n. sp.

The figures are about one-fifth less than natural size.

PLATE II.

1. *Carneades siccata* n. sp.
2. *Setagrotis terrifica* n. sp.
3. *Carneades edictalis* n. sp.
4. *Cerapoda stylata* n. sp.
5. *Oncocnemis colorado* n. sp.
6. *Mamestra languida* n. sp.
7. *Agrotiphila maculata* n. sp.
8. *Oncocnemis pudorata* n. sp.
9. *Agrotiphila incognita* n. sp.
10. *Scotogramma luteola* n. sp.
11. *Mamestra segregata* n. sp.
12. *Scotogramma uniformis* n. sp.

The figures are about natural size. The plate has been previously published in "Entomological News," vol. iv, No. 3.

PLATE III.

1. *Polia contadina* n. sp.
2. *Polia connecta* n. sp.
3. *Neuronia americana* n. sp.
4. *Carneades candida* n. sp.
5. *Carneades collocata* n. sp.
6. *Platyperigea præacuta* n. sp.
7. *Perigea reterata* n. sp.
8. *Eupolia licentiosa* n. sp.
9. *Carneades audentis* n. sp.
10. *Carneades mitis.*

The figures are somewhat larger than natural size.

PLATE IV.

1. *Pronoctua typica* n. sp.
2. *Chytonix connecta* n. sp.
3. *Carneades lætificans* n. sp.
4. *Hyppa indistincta* n. sp.
5. *Carneades titubatis* n. sp.
6. *Carneades segregata* n. sp.
7. *Xylômiges indurata* n. sp.
8. *Copicucullia astigma* n. sp.
9. *Cucullia albida* n. sp.
10. *Epidemas cinerea* n. sp. ♂.
11. *Copicucullia propinqua* n. sp.
12. *Epidemas cinerea* n. sp. ♀.

The figures are all slightly more than natural size.

PLATE V.

1. *Xylomiges candida* n. sp.
2. *Xylomiges pulchella* n. sp.
3. *Xylomiges cognata* n. sp.
4. *Mamestra hadeniformis* n. sp.
5. *Polia resaluta* n. sp.
6. *Tæniocampa ferrigera* n. sp.
7. *Leucania heterodoxa* n. sp.
8. *Leucania stolata* n. sp.
9. *Leucania farcta* n. var. *roseola.*
10. *Leucania imperfecta* n. sp.
11. *Leucania minorata* n. sp.
12. *Caradrina punctivena* n. sp.
13. *Caradrina mantalini* n. sp.
14. *Adipsophanes egestis* Grt.

All the figures about natural size.

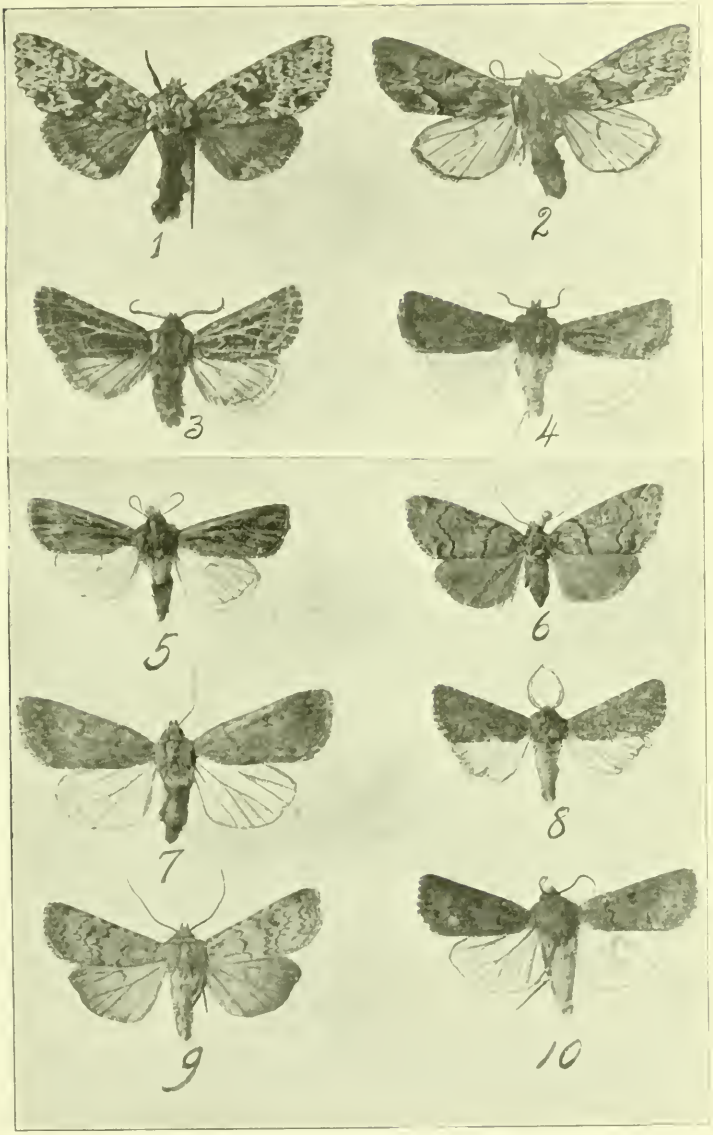
PLATE VI.

1. *Alaria felicitata* n. sp.
2. *Schinia* n. sp.
3. *Oxycnemis sectilis* n. sp.
4. *Omia uexæa* Smith.
5. *Oxycnemis nivalis* n. sp.
6. *Oxycnemis perfundis* n. sp.
7. *Hadena didonea* n. sp.
8. *Oncocnemis exemplaris* n. sp.
9. *Platyperigea camina* n. sp.
10. *Platyperigea discistriga* n. sp.
11. *Oncocnemis refecta* n. sp.
12. *Oncocnemis viriditincta* n. sp.

All the figures are one-fourth larger than natural size.

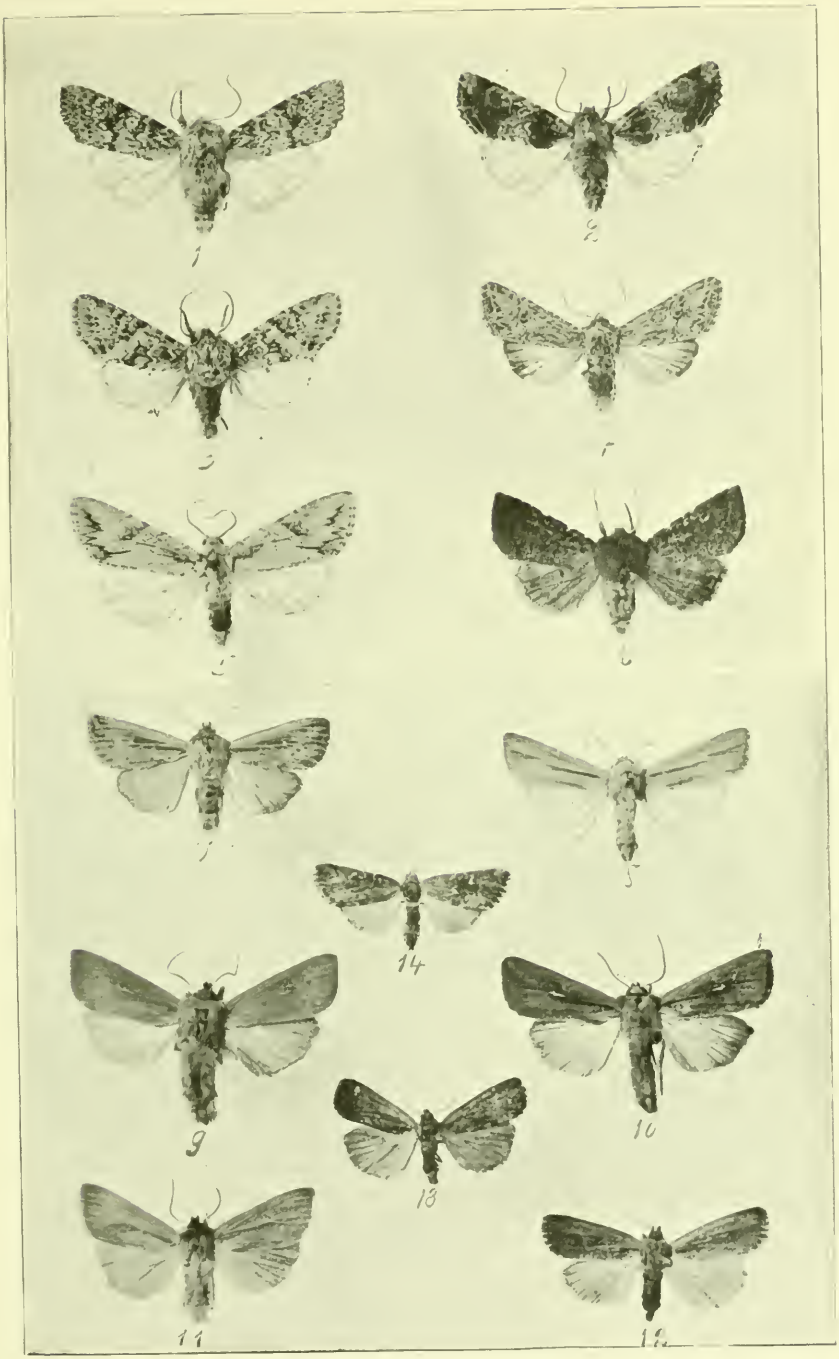
AMERICAN NOCTUIDÆ (Smith).

AMERICAN NOCTUIDÆ (Smith).



AMERICAN NOCTUIDÆ (Smith).

AMERICAN NOCTUIDÆ (Smith).



AMERICAN NOCTUIDÆ (Smith).

AMERICAN NOCTUIDÆ (Smith).

NOTES AND DESCRIPTIONS OF NORTH AMERICAN BOMBYLIDÆ.

BY D. W. COQUILLETT.

On pages 34 to 37 of his "Synopsis of the Families and Genera of North American Diptera," Dr. S. W. Williston gives a table of the genera of Bombylidæ, remodeled from that of the Baron Osten Sacken, published in "Biologia Centrali-Americana," Part Diptera, pages 75 to 77. As this table does not include all of the genera occurring in this country north of Mexico, I have constructed an entirely new table, comprising all of the Bombylid genera so far known to occur in this region. Before presenting this table, a few notes on some of the proposed genera may not be out of place here.

Dipalta, *Stonyx* and *Isopenthes*.—These three genera of Osten Sacken are founded upon specimens of *Anthrax* having three submarginal cells in each wing, the anterior branch of the third vein being connected with the second by a cross-vein. The examination of a large series of specimens taken at the same time and place reveals the fact that the presence or absence of this cross-vein is not a specific character, and therefore cannot be used for the separation of genera. My collection contains specimens of the following species of *Anthrax* in which this cross-vein, although absent in the majority of cases, is present in rare instances: *Anthrax caprea*, *A. syrtis*, *A. willistoni*, *A. junctura*, *A. sinuosa* and *A. nugator*. Except in the possession of this cross-vein, these specimens are indistinguishable from those in which it is absent. Indeed, Osten Sacken remarks that his *Isopenthes jennickeana*, "apart from the presence of this cross-vein, differs very little from *Anthrax sinuosa*" ("Biol. Cent.-Am." Diptera, page 129). Not only is the presence of this cross-vein of no importance in the different species of *Anthrax*, but this is also true of other genera related to *Anthrax*. Thus my collection contains specimens of the following species in which this cross-vein, although normally absent, is present in one or more instances: *Mancia nana*, *Argyramœba pauper*, *A. daphne* and *A. varia*; while specimens of the following species have this cross-vein present in one wing but absent in the other; *Lepidanthrax campestris*, *An-*

thrax morio and *Mancia nana*. These latter specimens prove very conclusively that this cross-vein is adventitious, and therefore not to be relied upon as a generic character. It therefore follows that the proposed genera *Dipalta*, *Stonyx* and *Isopenthes*, must be regarded as synonyms of *Anthrax*.

It may be remarked that those specimens of *Anthrax* in which this cross-vein is present can readily be distinguished from the genus *Exoprosopa*, which also has such a cross-vein, by the fact that the third joint is not furnished with a distinct terminal style, which is present in the last-named genus, and is separated from the third joint by a distinct, transverse suture.

Hemipenthes.—This was founded upon a species of *Anthrax* having distinct pulvilli, but in establishing this genus Dr. Loew overlooked the fact that the type of the genus *Anthrax* (the European *A. morio*) also possesses distinct pulvilli, and, indeed, was one of the species mentioned by him as being a type of his genus *Hemipenthes;* it will thus be seen that these two genera, having the same species as the type, are one and the same, *Hemipenthes* giving way to *Anthrax*, which has priority.

Triodites is a synonym of *Aphœbantus*, as stated by the writer in the May number of the "Canadian Entomologist" for the year 1886.

Lomatia elongata Say forms the type of a new genus, *Agnotomyia* Williston, which this author refers to the Leptidæ.

Leptochilus being pre-occupied in the Hymenoptera, has been changed to *Epacmus* by Osten Sacken. This genus cannot be separated from *Aphœbantus* by the absence of pulvilli, as the last-named author attempts to separate it in his table referred to above, but is easily distinguished by the strongly projecting, concave face, this in *Aphœbantus* being convex and more or less retreating.

Comastes O. S. is a synonym of *Heterostylum* Macq., which, by right of priority, must be retained.

Epibates O. S. is a synonym of *Thevenemyia* Bigot, which has been changed by its author to *Thevenetimyia* (Ann. Soc. Ent. de France, lxi, page 325).

Dischistus Loew and *Amictus* Wied. These two genera have not heretofore been recorded as occurring in North America, but in the last-mentioned work Bigot refers a single species from this region to each of these genera; his *Dischistus fuscipes* (l. c., page 369) appears to be the well-known *Sparnopolius fulvus* Wied., while his *Amictus auripilus* (l. c., 372) appears to belong to *Eclimus*.

Spogostylum Macq., a South American genus, and *Thlipsogaster* Rond., are now for the first time recorded from North America.

Three new genera are described in the present paper: *Aldrichia*, near *Eclimus*, but with three submarginal cells and the second and third veins forking near the small cross-vein; *Exepacmus*, near *Epacmus*, but with three submarginal cells and a different antennæ; and *Geminaria*, near *Lordotus*, but having the scutellum deeply sulcate longitudinally.

Genera of Bombylidæ from America North of Mexico.

Second and third veins forking at or near the small cross-vein, the distance being never greater than the length of that cross-vein.....1.

Second and third veins forking far before the small cross-vein and usually before the base of the discal cell.....9.

1.—Third antennal joint bisected by a suture, forming a distinct terminal style.....2.

Third antennal joint never bisected by a suture, the style when present indistinct.....7.

2.—Pulvilli spine-like, indistinct; anterior branch of third vein connected with the second by a cross-vein.....3.

Pulvilli pad-like, distinct.....5.

3.—Anterior branch of third vein near its middle connected with the third by a cross-vein.....**Hyperalonia.**

Anterior branch never connected with the third vein by a cross-vein.....4.

4.—First posterior cell near its middle bisected by a cross-vein.....**Exoptata.**

First posterior cell never bisected by a cross-vein.....**Exoprosopa.**

5.—Second antennal joint less than one-half as long as the third, the style bearing numerous hairs.....6.

Second antennal joint as long as the third, the style destitute of hairs.
Aldrichia n. gen.

6.—Anterior branch of third vein near its middle connected with the third vein by a cross-vein.....**Spogostylum.**

Anterior branch never connected with the third vein by a cross-vein.
Argyramœba.

7.—Anal cell widest near its middle, its apex less than half as wide as the length of the axillary cell.....8.

Anal cell widest at its apex, where its width equals one-half the length of the axillary cell.....**Mancia.**

8.—Penultimate section of fifth vein at least two-thirds as long as the ultimate section, sides of abdomen furnished with long scales, front tibiæ bristly.
Lepidanthrax.

Penultimate section of fifth vein less than two-thirds as long as the ultimate section.....**Anthrax.**

9.—Anterior branch of third vein connected with the second by a cross-vein forming three submarginal cells.....10.
Anterior branch never connected with the second vein; only two submarginal cells.....15.
10.—Wings with four posterior cells, anal cell open.....11.
Wings with only three posterior cells, anal cell closed.
Rhobdopselaphus.
11.—First posterior cell open.....12.
First posterior cell closed.....**Pantarbes.**
12.—Body more or less pilose, tibiæ bristly.....13.
Body naked, tibiæ destitute of bristles.....**Amphicosmus.**
13.—Antennæ as long as the head, the third joint not longer than the first two taken together.....14.
Antennæ less than one-half as long as the head, the third joint twice as long as the first two.....**Exepacmus** n. gen.
14.—First antennal joint scarcely thicker than the second.....32.
First antennal joint twice as thick as the second.....**Ploas.**
15.—Wings with four posterior cells.....16.
Wings with only three posterior cells, anal cell closed.....30.
16.—First posterior cell open.....17.
First posterior cell closed.....26.
17.—Anal cell open.....19.
Anal cell closed.....18.
18.—Proboscis not projecting beyond the epistoma.....**Oncodocera.**
Proboscis projecting far beyond the epistoma.....**Phthiria.**
19.—Body more or less pilose, tibiæ usually bristly.....21.
Body naked, tibiæ destitute of bristles.....20.
20.—Ocellar tubercle situated near hind edge of the front, marginal cell strongly expanded at its tip.....**Paracosmus.**
Ocellar tubercle situated near the center of the front, marginal cell only slightly expanded at its tip.....**Metacosmus.**
21.—Antennæ and abdomen destitute of long scales.....22.
Antennæ and abdomen provided with such scales.....**Lepidophora.**
22.—Third antennal joint lanceolate, scarcely longer than the first.....23.
Third antennal joint bulbous at the base, the remaining portion styliform, first joint not one-half as long as the third.....24.
23.—Base of second submarginal cell almost opposite apex of discal cell, apex of second submarginal cell less than one-half as broad as the length of this cell, body elongate and slender.....34.
Base of second submarginal cell far beyond apex of discal cell, apex of second submarginal cell as broad as the length of this cell, body short and rather robust.....**Sparnopolius.**
24.—Third antennal joint much longer than wide, contracted into a style at least half as long as the thickened base.....25.
Third antennal joint scarcely longer than wide, not contracted into a style at its apex.....**Encessia.**
25.—Face in profile concave, projecting forward below.....**Epacmus.**
Face convex, retreating below.....**Aphœbantus.**
26.—Anal cell open, proboscis projecting far beyond the epistoma.....33.
Anal cell closed, proboscis retracted within the oral cavity..**Oncodocera.**

27.—First basal cell longer than the second..... 28.
First basal cell only as long as the second..... 29.
28.—Lateral emargination of the occiput distinct; head large.
Heterostylum.
Lateral emargination of the occiput almost imperceptible; head small.
Bombylius.
29.—Pile of face dense, concealing from view the face and base of antennæ.
Anastœchus.
Pile of face sparse, not concealing the face from view.....**Systœchus.**
30.—Abdomen not narrowest at the base. ..... 31.
Abdomen narrowest at the base, slender, nearly naked.....**Systropus.**
31.—Body clothed with more scales than hairs and curved semi-circularly.
Toxophora.
Body more hairy than scaly and nearly straight.....**Geron.**
32.—Scutellum deeply sulcate longitudinally..... .....**Geminaria** n. gen.
Scutellum convex, not sulcate.....**Lordotus.**
33.—First posterior cell closed far from the margin of the wing, last section of fourth vein curving forward before its apex..... 27.
First posterior cell coarctate, or closed in or near the margin, last section of fourth vein straight.....**Thlipsogaster.**
34.—Thorax of male furnished with small tubercles.....**Thevenetimyia.**
Thorax destitute of tubercles.....**Eclimus.**

HYPERALONIA Rond.

Hyperalonia gayophylax Loew.

Described as an *Exoprosopa*. Through the kindness of Mr. Samuel Henshaw, I have been put in possession of a drawing of the right wing of the type specimen; this shows, as I suspected, that several errors occur in Loew's original description (Dipt. Am. Sept., Cent. viii, No. 18). The apex of the marginal cell and the whole of the first submarginal, excepting its base and apex, are grayish hyaline, instead of being black, as stated in the description.

ALDRICHIA n. gen.

Antennæ nearly twice as long as the head, first joint slender, slightly shorter than the second, twice as long as broad, the second tapering slightly to the tip; third joint slightly shorter but wider than the second, greatly compressed, in outline nearly elliptical, but the tip contracted into a short, cylindrical styliform process; style apical, acuminate, one-third as long as the third joint. Face shorter than diameter of first antennal joint. Proboscis projecting nearly half its length beyond the epistoma, labellæ very large, nearly half as long as the proboscis; palpi nearly cylindrical, three-fourths as long as the proboscis. Thorax each side bearing two ante-alar macrochætæ; scutellum rounded behind. Abdomen nearly cylindrical,

two and a half times as long as wide. Wings having the anterior branch of the third vein connected with the second by a cross-vein, forming three submarginal cells; four posterior cells, all of them open, as is also the anal; furcation of the second and third veins occurs slightly before the small cross-vein, the distance equaling two-thirds the length of that cross-vein; first basal cell slightly longer than the second; marginal cell not greatly expanded at the apex. Tibiæ bristly, pulvilli large, empodium bristle-like.

Dedicated to Mr. J. M. Aldrich, who had recently taken up the study of our Diptera, and to whose kindness I am indebted for a specimen of this very interesting insect.

Aldrichia ehrmanii n. sp.—Wholly black, opaque, except the shining scutellum. Pile of upper part of front, face, antennæ, mouth parts and lower half of occiput, black, that on lower part of front and upper half of occiput largely white. Short pubescence of thorax and scutellum yellow, the longer pile and bristles black; pile of pleura white. Short pubescence of abdomen yellow, pile on middle of dorsum and on last segment black, that on sides of abdomen white. Wings blackish, darkest in costal, marginal and first basal cells, anal and axillary cells nearly hyaline. Length 9 mm.

Pennsylvania (Ehrman). Mr. Aldrich writes me that he has a second specimen which is identical with the one described above.

SPOGOSTYLUM Macq.

Spogostylum vandykei n. sp.—Black, the tibiæ brown, knob of halteres largely yellow. Pile of front in the female black, of face mixed yellow and black, in the male wholly yellow, that of the body in both sexes abundant, yellow; many on dorsum of abdomen black; scales of front, face, occiput and femora, yellowish white. Thorax and scutellum destitute of scales. Abdomen with a few black ones posteriorly; third antennal joint suddenly contracted into a slender style, which is scarcely longer than the thickened basal part; terminal style scarcely longer than broad; face much retreating below, proboscis not projecting; bristles of legs black, occurring on all femora and tibiæ, pulvilli very large. Wings in the female hyaline, costal cell and base of wing to discal cell yellowish, palest in apices of anal and axillary cells, a dark brown cloud at bases of first submarginal, first and fourth posterior cells; in the male, only the costal cell is yellow, a brown cloud at bases of first submarginal, first and fourth posterior, and of the discal cell; a stump of a vein near base of second vein and anterior branch of the third; the latter connected with the third by an oblique cross-vein. Length 10–12 mm.

California. One male and two females. The first specimen was collected in Mariposa County, in July, by Dr. E. C. Van Dyke, of this city, to whom it gives me pleasure to dedicate this interesting species; in April of the following year I was fortunate enough to capture a pair of specimens in one of the cañons on the border of

the Colorado Desert, in what was formerly San Diego, but is now Riverside, County.

ARGYRAMŒBA Schiner.

Argyramœba antecedens Walker is a synonym of *A. limatulus* Say, and *A. obsoleta* Loew is synonymous with *A. albofasciata* Macq. *A. albosparsa* Bigot (Ann. Soc. Ent. France, lxi, 348) appears to be the same as *A. argyropyga* Wied.

The following table contains all the species at present known to occur in this country north of Mexico:

1.—Costal cell unicolorous, never distinctly checkered ..... 2.
Costal cell checkered hyaline and black, wings containing more than fifteen black spots ..... **œdipus** Fabr.

2.—Wings largely hyaline ..... 3.
Wings wholly black ..... **cephus** Fabr.

3.—Hyaline portion of wings containing black spots. ..... 13.
Hyaline portion of wings destitute of black spots; base of wings black, the apical portion hyaline ..... 4.

4.—Brown of wings reaches apex of first submarginal cell ..... 6.
Brown of wings does not reach apex of first submarginal cell ..... 5.

5.—Anal and axillary cells largely or wholly black ..... 15.
Anal and axillary cells largely hyaline ..... **fur** O. S.

6.—Anal cell largely or wholly black, legs black ..... **argyropyga** Wied.
Anal and axillary cells largely hyaline, legs yellowish ... **succincta** n. sp.

7.—Wings destitute of black spots beyond base of second submarginal cell.... 8.
Wings marked with one or more black spots beyond base of second submarginal cell ..... 12.

8.—Second basal cell largely or wholly brown, a large brown spot at base of second submarginal cell ..... 9.
Second basal cell, except its base and apex, hyaline ..... 10.

9.—With a large brown spot at base of second posterior cell... **limatulus** Say.
With at the most only a trace of such a spot ..... **albofasciata** Macq.

10.—Anal cell with a brown spot near its middle, a large one at bases of second submarginal and second posterior cells ..... **varia** Fabr.
Anal cell destitute of a brown spot near its middle ..... 11.

11.—Tomentum of abdomen wholly white and yellow ..... **daphne** O. S.
Tomentum of abdomen largely black ..... **pauper** Loew.

12.—With only one black spot beyond base of second submarginal cell. **cybele** n. sp.
With at least two black spots beyond base of this cell... { **stellans** Loew. **pluto** Wied.

13.—Wings containing fifteen black spots ..... **melanopogon** Big.
Wings containing less than fifteen black spots. ..... 14.

14.—Third posterior cell never bisected by a cross-vein ..... 7.
Third posterior cell bisected by a cross-vein; length of body 14 mm. and over ..... { **simson** Fabr. **delila** Loew.

15.—Pile of front end of thorax and of breast black ..... **analis** Say.
Pile of front end of thorax and of breast white ..... **gideon** Fabr.

Argyramœbe cybele n. sp.—Black, apex of knob of halteres white. Pile of head and body black, except many on front end of thorax, several on pleuræ, a cluster at hind corners of thorax and on sides of first abdominal segment, which are white; scales of head, thorax and scutellum yellowish white, mixed with black on the last two, those of abdomen black, on hind end of each segment white; styliform portion of third antennal joint scarcely longer than the thickened basal part; style as long as the styliform portion of the third joint; face greatly retreating below, proboscis not projecting; all femora and tibiæ bristly, pulvilli elongated but narrow. Wings hyaline, the base brown, the outline of this color extending from apex to auxiliary vein transversely in an undulatory manner to last fifth of discal cell, then basally nearly to small cross-vein, then zigzaging across discal and base of third posterior, then basally and across fourth posterior cell, then following penultimate vein nearly to its apex, then crossing anal and going through axillary cell nearly to its base; a hyaline spot near bases and another near apices of second basal, anal and axillary cells, two in marginal and in first basal, one in second submarginal, first posterior and discal cells; a brown cloud in marginal cell back of apex of first vein, another at bases of second submarginal and second posterior cells, another on vein between discal and third posterior cell, situated on a stump of a vein. Length 6 mm.

Southern California. Three specimens in May.

Argyramœba succincta n. sp.—Black, femora and tibiæ yellowish, knob of halteres largely light yellow. Pile of head black, the scales yellowish; pile and scales of body mixed black and yellowish, a stripe of black pile between humeri and wings; pile of sides of abdominal segments three to six long, very dense, black; pile of venter white; styliform portion of third antennal joint four times as long as the thickened basal part, style one-fourth as long as the styliform portion of the third joint; face much retreating below, proboscis not projecting; all femora and tibiæ bristly, pulvilli very small. Wings hyaline, front edge brown, beginning in apex of first submarginal cell, filling apex of marginal cell, then contracted to first vein, which it follows to a point nearly opposite apex of discal cell, then crossing to second vein, which it follows nearly to small cross-vein, then crossing to discal cell and following its front edge nearly to base of this cell, which it crosses and continues through extreme apex of second basal cell, middle of anal cell and encroaches slightly upon the axillary cell near its base; axillary cell and alulets very narrow; veins at bases of first submarginal and first posterior cells bordered with yellow, a yellow spot near middle of first basal cell. Length 9 mm.

Arizona. A single specimen.

Argyramœba varia Fabr.

Specimens of this European species were received from V. von Röder, of Germany, and agree in all respects with specimens collected by the writer in Southern California in May. It has not hitherto been recorded from this country.

ANTHRAX Scopoli.

Anthrax pertusa Loew.

The characters accorded this species in my paper referred to below will require amending. Through the kindness of Mr. Samuel Henshaw, of the Museum Comparative Zoology, at Cambridge, Mass., I have been put in possession of a sketch of the right wing of the type of this species. This sketch reveals the fact that a very serious error occurs in Loew's original description (Diptera Am. Sept., Cent. viii, No. 18); in the fourth and fifth lines from the bottom of the description, for "base of anterior branch of the third vein." read "base of second vein,"—the brown color not extending to the base of the second submarginal cell.

The following table contains those species formerly placed in *Hemipenthes* (which, as stated above, is a synonym of *Anthrax*) as well as several additional species not given in my Revision of this genus (TRANS. Am. Ent. Soc. xix, 168–187). Bigot's *Anthrax fissus* (Ann. Soc. Ent. France, lxi, 354), is apparently a synonym of *A. dispar* Coq., while his *A. bifenestratus* (l. c. 356) appears to be the same as *A. nugator* Coq.

1.—Wings more or less hyaline at the apex ..... 2.
Wings wholly blackish brown ..... **pullata** n. sp.

2.—Brown of wings does not encroach upon apex of first submarginal cell ..... 4.
Brown of wings partially or entirely crosses apex of first submarginal cell ..... 3.

3.—Knob of halteres and the legs black ..... **latelimbatus** Big.
Knob of halteres and the legs yellowish ..... **sinuosa** Wied.

4.—Brown of wings not reaching base of second submarginal cell, except sometimes as a border to the third vein ..... 6.
Brown of wings encroaches upon base of second submarginal cell ..... 5.

5.—Brown of wings reaches the hind margin in the fourth posterior cell.
melasoma Van d. W.
Brown of wings does not reach the hind margin in the fourth posterior cell.
castanipes Big.

6.—Abdomen destitute of black tomentum ..... 7.
Abdomen furnished with black tomentum ..... 10.

7.—Outline of brown of wings well defined, no brown clouds on veins at bases of second submarginal and second posterior cells ..... 8.
Outline of brown indistinct, brown clouds on veins at bases of second submarginal and second posterior cell ..... **obscura** n. sp.

8.—Face slightly retreating below ..... 9.
Face much produced below, tomentum of abdomen pale yellow.
diagonalis Loew.

9.—Tomentum of abdomen with a brassy or violaceous reflection, pile of front end of thorax black ..... **levicula** n. sp.
Tomentum of abdomen destitute of a metallic reflection, pile of front end of thorax yellow ..... **pallidula** n. sp.

10.—Wings destitute of brown clouds on veins at bases of the second submarginal and second posterior cells ..... 11.
Wings with brown clouds on these veins ..... **nebulosa** n. sp.
11.—One-half of axillary cell hyaline, apex of anal cell broadly hyaline..... 12.
One-fourth or less of axillary cell hyaline, pulvilli large..... 14.
12.—Veins at bases of first and fourth posterior cells not bordered with subhyaline ..... 13.
Veins at bases of these cells bordered with subhyaline, pulvilli large, face retreating ..... **catulina** n. sp.
13.—Light colored tomentum of body violaceous, face scarcely produced. **mobile** n. sp.
Light colored tomentum never violaceous, face greatly produced. **consul** O. S.
14.—Brown of wings fills base of discal cell to the small cross-vein..... 15.
Brown of wings does not fill base of discal cell to the small cross-vein, cross-veins within the brown not distinctly bordered with subhyaline. **eumenes** O. S.
15.—Sides of second abdominal segment furnished with black pile..... 16.
Sides of this segment destitute of black pile..... **seminigra** Lw.
16.—Knob of halteres largely yellow, brown in discal cell reaches beyond small cross-vein..... **morio** Linn.
Knob of halteres wholly blackish, brown in discal cell does not pass beyond small cross-vein..... **catulina** n. sp.

Anthrax consul O. S.

A specimen from South Dakota (J. M. Aldrich), I refer with some doubt to this Central American species; the face and legs in my specimen are reddish.

Anthrax eumenes O. S.

Described from Mexico. I have collected it in various parts of California.

Anthrax morio Linn.

Specimens are in my collection from Maine, New Hampshire and Montana, which I am unable to separate from specimens of this European species received from V. von Röder, of Germany. *Anthrax morioides* Say is a synonym.

Anthrax pullata n. sp.—Black, the femora, tibiæ and base of tarsi yellowish. Pile of head and on sides of abdomen, except on front angles of the first two segments black, that on front end of thorax, upper part of pleura and on breast mixed black and yellowish, on remainder of pleura mixed black and white; tomentum of face and occiput yellowish, that on the front, thorax, scutellum and abdomen coppery violaceous, on the last two mixed with black. Base of third antennal joint very short-conical, face retreating below, proboscis not projecting beyond the epistoma. Front tibiæ provided with bristles, claws

of front tarsi small, pulvilli rather large. Wings wholly blackish brown. Length 10 mm.

Southern California. A single specimen in May.

Anthrax obscura n. sp.—Black, the first two antennal joints, face, lower fourth of front, femora, tibiæ and base of tarsi, yellow. Pile of front and face black, that of the body light yellow; tomentum of occiput white, that on front, face and entire body light yellow. Base of third antennal joint conical, face much produced below, proboscis projecting one-fourth its length beyond the epistoma. Front tibiæ provided with bristles, claws of front tarsi rather large, pulvilli wanting. Wings grayish hyaline at the apex, the base pale brownish, the outline of this color indistinct, the brown color darkest along the veins, reaching those at bases of the second submarginal and second posterior cells; somewhat darker clouds on veins at bases of the first, third and fourth posterior cells. Length 7 mm.

Southern California. A single specimen in May.

Anthrax levicula n. sp.—Black. Pile black, that at each hind angle of the thorax and on sides of first two abdominal segments largely white; tomentum obscure, brassy yellow or violaceous; bristles of thorax and scutellum black. Base of third antennal joint short-conical, face very slightly retreating below, proboscis not projecting beyond the epistoma. Front tibiæ destitute of bristles, claws of front tarsi rather large, pulvilli wanting. Wings hyaline at the apex, the base brown, filling basal third of marginal cell, bases of first submarginal, and of first posterior, basal half of discal cell to far beyond the small cross-vein, base of third and nearly the basal half of the fourth posterior cell, also the whole of the anal and axillary cells, but in the axillary cell the brown color is very faint. Length 5-6 mm,

Southern California. Three specimens in April and May.

Anthrax pallidula n. sp.—Black. Pile of head, breast and sides of abdomen, except on the first three segments, black, remaining pile of thorax and abdomen yellowish, bristles of thorax and scutellum also yellowish; tomentum of head golden-yellow, of thorax, scutellum and abdomen yellowish white. Base of third antennal joint elongate-conical, face very slightly retreating below, proboscis not projecting beyond the epistoma. Front tibiæ destitute of bristles, claws of front tarsi minute, pulvilli wanting. Wings hyaline at the apex, the base brown, the outline of this color extending from near apex of auxiliary vein transversely to the second vein, then basally a short distance, then transversely to the discal cell at its last fourth, then basally a short distance, then crossing the discal, base of third and basal fourth of posterior cell, beyond which the outline is indistinct; apical fourth of anal and whole of axillary cell hyaline; the brown fills base of discal cell to beyond the small cross-vein. Length 6 mm.

Southern California. A single specimen in September.

Anthrax nebulosa n. sp.—Black. Pile of head, breast largely, several on each end of thorax and that on sides of abdomen, except on the first two segments black, that on upper part of pleura and sides of first two abdominal segments, except the hind angle of the second, white; that on front end of

thorax yellowish; bristles of thorax yellow, those of the scutellum black; tomentum of front and face yellowish white, on the occiput white, on front end of thorax extending on sides above the wings white, remaining tomentum of thorax and on apical half of scutellum yellow, on base of scutellum white; tomentum on bases of second and third abdominal segments white, on base of fourth and whole of fifth and sixth yellow, that on apices of second, third and fourth black. Base of third antennal joint short-conical, face much produced below, proboscis not projecting beyond the epistoma. Front tibiæ destitute of bristles, claws of front tarsi very small, pulvilli wanting. Wings grayish hyaline, costal, first basal and basal two-thirds of the marginal cell brown, a black cloud on veins at base of each submarginal and of each posterior cell, sometimes one at base of discal cell. Length 8 mm.

Southern California. Three specimens in July.

Anthrax catulina n. sp.—Black, the tibiæ and base of tarsi yellow. Front and face yellow tomentose and black pilose, face retreating below. Proboscis not projecting beyond the epistoma. Third antennal joint short-conical at its base, the styliform portion slender and linear. Pile on front end of thorax yellow, that on the sides, on the pleura and breast, black and yellow. Abdomen somewhat abraded, black tomentum occurs on each segment; pile on sides of first segment yellow, on the remaining segments largely black. Front tibiæ provided with bristles, claws of front tarsi small, pulvilli distinct. Knob of halteres black. Wings hyaline at apex, the base blackish brown, the outline of this color extending from near apex of first vein transversely to second vein, then basally to a point opposite apex of discal cell, then transversely to last eighth or tenth of that cell, then basally to small cross-vein, then transversely to fourth posterior cell slightly beyond base of the third, crossing the fourth near its middle and following the penultimate vein to or near base of the fourth posterior cell, then crossing to the hind margin near the middle or last fourth of the axillary cell; veins at bases of the first submarginal, first and fourth posterior cells distinctly bordered with subhyaline. Length 5–10 mm.

Washington (O. B. Johnson) and Northern California. Four specimens.

Anthrax mobile n. sp.—Black, the legs brownish. Pile of head and body black, that on front end of thorax mixed with white, a cluster of white pile at each hind angle of thorax and another on each side of the first abdominal segment; tomentum of head and body violaceous, that on the head and abdomen mixed with black, on the venter black. Base of third antennal joint very short-conical, the styliform portion slender and linear; face slightly produced below, proboscis not projecting beyond the epistoma. Front tibiæ destitute of bristles, claws of front tarsi small, pulvilli minute. Wings hyaline at the apex, the base black, the outline of this color extending from apex of auxiliary vein transversely to second vein, then basally nearly to base of first submarginal cell, then transversely to discal cell slightly beyond the small cross-vein, then basally to first fourth of the discal cell, then crossing this cell and base of fourth posterior cell, then going basally along the penultimate vein to its middle, then crossing the anal and axillary cells slightly before the middle of each. Length 7 mm.

Southern California. A single specimen in May.

EXEPACMUS n. gen.

Head conical, the face greatly produced forward and on a plane with the anterior three-fourths of the front. Eyes bare, widely separated in the ♀. Antennæ scarcely one-fourth length of head; first joint nearly as long as broad, second twice as broad as long, the third joint three times as long as wide, twice as long as the first two taken together, narrowed on its apical two-thirds, except a slight expansion at the last two-thirds of its length; apex of the third joint rounded, beset with very short hairs, and in the centre bearing a slender, blunt-pointed style, which is one-sixth as thick as the apex of the third joint, and is one-tenth as long as this joint. Proboscis not projecting beyond the epistoma, labellæ well developed; palpi slender, one-half as long as the proboscis. Thorax, scutellum and legs furnished with bristles, pulvilli present, empodium wanting. Scutellum evenly convex, rounded behind. Wings with three submarginal and four posterior cells, all of the latter open, as is also the anal; furcation of the second and third veins occurs slightly beyond the base of the discal cell; small cross-vein situated beyond the middle of the discal cell; anterior branch of the third vein connected with the second by a cross-vein; second vein and anterior branch of the third not strongly bent forward at their tips.

Exepacmus johnsoni n. sp. ♀.—Opaque black, the face, first two antennal joints, palpi, halteres, apex of abdomen, femora, tibiæ and tarsi, except the last two joints, yellow. Pile and tomentum of front yellowish, a few black ones on the vertex; face nearly naked; pile of occiput and of palpi yellowish; tomentum of thorax yellowish, the erect pile black; bristles of thorax and scutellum reddish; a stripe of short white pile extends from humeri to each wing; pile and tomentum of the somewhat abraded abdomen appears to have been entirely yellow; bristles of legs black, all the femora and tibiæ provided with bristles, the underside of each hind femur bearing a row of six bristles. Wings hyaline, the subcostal cell yellow. Length 7 mm.

California (O. B. Johnson).

PLOAS Latr.

The following table includes all the species at present known to occur in America north of Mexico:

1.—Wings hyaline, or with the black of base gradually evanescent posteriorly..2.
Wings black and hyaline, the black reaching apex of anal cell; scutellum and abdomen opaque.....**fenestrata** O. S.
2.—Abdomen wholly opaque.....3.
Abdomen partly shining.....6.

3.—Scutellum wholly opaque.....4.
Scutellum shining.....**atradula** Loew.
4.—Pile of antennæ and face largely black, wings blackish in front.....5.
Pile of antennæ, head, thorax and scutellum white or yellowish: wings hyaline, the cross-veins bordered with brown.....**limbata** Loew.
5.—Pile of thorax and scutellum largely black, costa of male furnished with teeth-like projections.....**serrata** n. sp.
Pile of thorax and scutellum largely yellowish, costa destitute of teeth-like projections.....**melanocerata** Bigot.
6.—Abdomen having each segment partly opaque.....7.
Abdomen, except first segment, wholly shining greenish blue, halteres black.
amabilis O. S.
7.—Knob of halteres partly or wholly yellow.....8.
Knob of halteres wholly black, pile of antennæ and face black.
obesula Loew.
8.—Pile of thorax and basal half of abdomen wholly yellowish red.
rufula O. S.
Pile of thorax and abdomen mixed black and yellowish.
nigripennis Loew.

Ploas serrata n. sp. ♂ ♀.—Opaque black, the halteres yellow. Pile of antennæ, face, lower half of occiput (usually) and many on upper half, on thorax, scutellum and abdomen black, that on upper half of occiput, on chin, coxæ and on sides of basal half of abdomen largely yellow, that on sides of thorax in the female yellow; appressed tomentum of head and body yellow. Wings hyaline, the base smoky brown, this color gradually evanescent posteriorly, leaving a brown cloud on veins at bases of first and fourth posterior cells; costa of male furnished with small, teeth-like projections. Length 6–11 mm.

Southern California. Seven males and seven females in April, May and December.

PHTHIRIA Meigen.

The following table contains all the species known to occur in this country north of Mexico.

1.—Wings, except sometimes in the costal cell, hyaline.....2.
Wings marked with brown clouds or spots.....8.
2.—Body more or less black.....3.
Body wholly yellow, only the proboscis and tips of tarsi black,
sulphurea.
3.—Head, thorax and sometimes the abdomen marked with yellow (females)...4.
Head, thorax and abdomen wholly black.....6.
4.—Antennæ black, sides of face not spotted.....5.
Antennæ largely yellow, sides of face marked with two black spots (four in all).....**notata.**
5.—Scutellum and dorsum of thorax wholly black.....**florale** n. sp.
Scutellum partly yellow.....11.
6.—Thorax and scutellum opaque.....7.
Thorax and scutellum shining, pile of head and body white.
diversa n. sp.

7.—Pile of head, thorax and scutellum largely black..... .....**simile** n. sp.
Pile of head and body whitish (males). .....**humilis.**
8.—Wings with about six brown spots on each, body not marked with black..9.
Wings with more than six brown spots..... .....10.
9.—Cheeks wholly light yellow.....**sulphurea.**
Cheeks largely dark brown .....**scolopax.**
10.—Face with a large black spot each side.....**punctipennis.**
Face destitute of black spots .....**egerminans.**
11.—Sides of scutellum and of face wholly yellow.....**diversa** n. sp.
Sides of scutellum and of face largely black ....**humilis.**

Phthiria simile n. sp. ♂.—Wholly opaque velvet-black, except the yellow stalk, and sometimes the knob of halteres; pile of head, thorax and scutellum black, that of abdomen and legs whitish; proboscis projecting nearly half its length beyond tip of antennæ; palpi nearly half as long as proboscis; first antennal joint nearly twice as long as the second, the latter as wide as long, the third twice as long as the first two, in outline oblanceolate, bearing on its upperside just before its apex two short, slender, styliform processes, their tips reaching nearly as far forward as the tip of this joint, the one nearest the tip yellowish; on upperside of third antennal joint are three or four rather stout bristles, which are nearly half as long as this joint. Wings hyaline, apical half of subcostal cell yellow. ♀ same as the ♂, except that the color is more gray, with three brownish stripes on the thorax, pile of occiput and several on thorax and scutellum white, the bristles on upperside of third antennal joint only one-sixth as long as that joint. Length 3–5 mm.

Southern California. Six males and five females in February.

Phthiria florale n. sp. ♀ same as ♀ of *simile*, with these exceptions: Sides of face, humeri and spot above each coxa yellow, that above middle coxæ double; pile of head, body and legs yellow; first antennal joint scarcely longer than the second, the third nearly three times as long as the first two, of nearly an equal width, but the last third tapering slightly to the tip, which is obliquely truncated, its upper angle prolonged, while beneath it is a short, slender, styliform process; upperside of this joint destitute of long bristles; proboscis projecting two-thirds its length beyond tip of antennæ; palpi scarcely one-eighth as long as proboscis. Length 5 mm.

Southern California. A single specimen in July.

Phthiria diversa n. sp. ♂.—Black, the thorax and scutellum shining, the halteres, extreme apex of femora, and sometimes the tibiæ except at apex, yellow; pile of head and entire body white; proboscis projecting half its length beyond tip of antennæ; palpi one-fourth as long as proboscis; first antennal joint one and a half times as long as the second, the third nearly three times as long as the first two, but slightly widening outwardly, furnished with two small styliform processes on the upperside just before the apex, upperside of this joint bearing about eight bristles, the longest of which is one-fifth as long as this joint. Wings hyaline, apical half of subcostal cell yellow.

♀.—Head yellow, a large spot at base of antennæ usually extending as a narrow irregular stripe to occiput, black; antennæ, proboscis, palpi and middle of occiput black; thorax shining black, two subdorsal yellow lines greatly enlarged

at their posterior ends; lateral margins of thorax, extending on pleura in front of each wing and at front end, where it expands in a spot above front coxæ, also a stripe above middle and hind coxæ and spot in front of halteres yellow; scutellum yellow, black at base. Abdomen black, hind margin of each segment broadly yellow; halteres yellow; tibiæ and femora, except sometimes basal three-fourths of hind femora, yellow. Wings and antennæ as in the male. Length 3–4 mm.

Southern California. Eighteen males and twenty-one females in May. All of these with the exception of two of the females were captured at the same time and place, and notwithstanding the difference in color, are evidently the opposite sexes of the same species.

Phthiria humilis O. S.

Osten Sacken described the male; two females captured at the same time and place as a male have the following parts dull yellow: upper half of front (except the ocellar triangle) occipital orbits narrowly, but widening below, narrow lateral margin of thorax, except above wings, spot above front coxa and another in front of halteres, scutellum except the sides, also a narrow hind border to each segment of the abdomen.

EPACMUS O. S.

Epacmus concinnus Coq., *pellucidus* Coq., *transitus* Coq. and *fumosus* Coq. belong to the genus *Aphœbantus*. In referring them to *Epacmus* I was misled by Osten Sacken's tables, where the absence of pulvilli is given as the distinguishing feature,—a very unreliable character, causing the separation into different genera of species which are very closely related. The structure of the face is a more satisfactory character—concave and projecting below in *Epacmus*, convex and retreating below in *Aphœbantus*. Bigot's *Epacmus rufolimbatus* (Ann. Soc. Ent. France, lxi, 359), in which the proboscis equals the thorax and abdomen in length, may belong to *Aphœbantus*. If this surmise is correct, we then have only two species of *Epacmus* in North America,—*E. modestus* Loew and the following:

Epacmus nebritus n. sp. ♂ ♀.—Black, the oral margin, tibiæ and base of tarsi reddish, knob of halteres dark brown. Pile of head, thorax and abdomen yellow or white, bristles of thorax, scutellum and legs reddish; scales of front and face quite dense, whitish, those of thorax brown and whitish, the brown forming four stripes; scutellum shining, the hind edge emarginate, nearly the entire surface covered with rather long reddish bristles and yellowish scales, the hind edge bare, except in the middle and at the extreme base; scales of abdomen brown, those at apex of first segment and base of second white; eyes of

male separated nearly one-third width of ocellar tubercle; thickened basal portion of third antennal joint long-conical, the robust styliform portion scarcely one-half as long as the thickened basal part; face much produced below, proboscis projecting half the length of the labellæ beyond the epistoma. Wings hyaline, apical two-thirds of subcostal cell yellow; hind femora with several short bristles, but no long hairs below; middle femora with one or more bristles, front femora destitute of bristles. Length 7–10 mm.

Southern California. Five males and five females, in April and May.

This is the form described in my Monograph ("Can. Ent.," May, 1886) as *Leptochilus modestus* Loew, but it differs from that species in the structure of the antennæ, separated eyes of the male, and in having no black scales on the abdomen.

APHŒBANTUS Loew.

As stated above, *Epacmus concinnus*, *pellucidus*, *transitus* and *fumosus* belong to *Aphœbantus*, and I suspect that *Epacmus rufolimbatus* Bigot should also be referred to the same genus. These and the other species known to occur in this country north of Mexico are included in the following table. *Aphœbantus rattus* O. S., from Texas, belongs to the genus *Eucessia*. *A. squamosus* Coq. is a synonym of *A. marcidus* Coq.

1.—Ground color of abdomen black.....3.
Ground color of abdomen yellow, wings hyaline.....2.
2.—Antennæ having the two basal joints yellow, scales of abdomen yellow, except a cross-band of white scales on second segment.....**concinnus** Coq.
Antennæ wholly black, scales of abdomen yellow, except those on extreme apex of each segment, which are white.....**varius** Coq.
3.—Proboscis never projecting more than the length of its labellæ beyond the epistoma.....5.
Proboscis projecting at least one-half its length.....4.
4.—Face black, proboscis shorter than thorax and abdomen, no brown cloud on the small cross-vein.....**litus** Coq.
Face red, proboscis as long as the thorax and abdomen, a brown cloud on the small cross-vein.....**rufolimbatus** Bigot.
5.—Thorax destitute of vittæ of white scales.....6.
Thorax with two vittæ of white scales, front concealed under a dense covering of scales, hind margin of scutellum opaque and scaly.
vittatus Coq.
6.—Wings, except sometimes the subcostal cell, hyaline.....7.
Wings brown on basal portion, abdomen destitute of black scales.....26.
7.—Pile of face and front largely or wholly black, knob of halteres light yellow.....8.
Pile of face white or yellowish.....10.

8.—Abdomen furnished with black scales.....9.
Abdomen destitute of black scales.....**tardus** Coq.
9.—Hind femora with long hairs besides the bristles below, face sparse, yellowish tomentose.....**desertus** Coq.
Hind femora with bristles, but no long hairs below, face destitute of tomentum.....**scriptus** Coq.
10.—Abdomen destitute of black scales.....11.
Abdomen furnished with black scales.....14.
11.—Pile of front white or yellow.....12.
Pile of front black.....24.
12.—Styliform portion of third antennal joint as long as the thickened basal part, scales of front usually sparse.....13.
Styliform portion two-thirds as long as the thickened basal part, front concealed beneath a dense covering of white scales, knob of halteres light yellow.....**pavidus** Coq.
13.—Hind femora with at the most some bristles, but no long hairs below.....20.
Hind femora with many long hairs below, hypopygium not longer than last two segments.....**marcidus** Coq.
14.—Knob of halteres largely or wholly light yellow.....17.
Knob of halteres dark brown.....15.
15.—Styliform portion of third antennal joint scarcely longer than the thickened basal part.....16.
Styliform portion twice as long as the thickened basal part, cross-bands of black scales on abdomen of female not interrupted in the middle.
mus O. S.
16.—Cross-bands of black scales on abdomen of female interrupted in the middle.
interruptus Coq.
Cross-bands not interrupted.....**brevistylus** Coq.
17.—Styliform portion of third antennal joint twice as long as the thickened basal part.....22.
Styliform portion scarcely longer than the thickened basal part.....23.
18.—Cross bands of black scales on abdomen of female more than four times as broad as those of light-colored scales.....**carbonarius** O. S.
Cross-bands of black scales scarcely wider than those of light-colored scales, abdomen of male broad and elliptical.....**hirsutus** Coq.
19.—Pile of face golden-yellow.....**capax** Coq.
Pile of face white.....**mixtus** Coq.
20.—Hypopygium of male more than one-half as long as the abdomen, pile of face white, hind margin of scutellum opaque and scaly.
abnormis Coq.
Hypopygium very small.....21.
21.—Knob of halteres largely dark brown, pile of face yellowish white, hind margin of scutellum shining and bare, except in the middle.
conurus O. S.
Knob of halteres light yellow.....25.
22.—Pile of front black.....18.
Pile of front white, hind margin of scutellum shining.....**catulus** n. sp.
23.—Pile of front black, hind margin of scutellum subopaque and scaly.....19.
Pile of front white, spots of black scales on abdomen, in two rows.
vulpecula n. sp.

24.—Knob of halteres yellow, scales of abdomen brown, hind margin of scutellum opaque ..... **cervinus** Loew.
Knob of halteres black, scales of abdomen brown and white, hind margin of scutellum shining ..... **conurus** O. S.
25.—Face much retreating below, its pile deep golden-yellow ..... **capax** Coq.
Face not retreating, its pile never deep golden-yellow ..... 29.
26.—Pile of front partly black ..... 27.
Pile of front wholly white or yellowish, hind margin of scutellum opaque and scaly ..... 28.
27.—Hind margin of scutellum bare and shining ..... **transitus** Coq.
Hind margin of scutellum opaque and scaly ..... **fumosus** Coq.
28.—Styliform portion of third antennal joint not longer than the thickened basal part, second basal cell almost hyaline ..... **fumidus** Coq.
Styliform portion nearly twice as long as the basal portion, second basal cell distinctly brown ..... **fucatus** n. sp.
29.—Scutellum and thorax destitute of bristles ..... **pellucidus** Coq.
Scutellum and thorax bristly ..... **leviculus** n. sp.

Aphœbantus catulus n. sp. ♂.—Black, the halteres yellow. Pile and bristles of head, body and legs white or yellowish, the scales also white or yellowish, except a broad stripe of largely black scales in the middle of dorsum of abdomen, sometimes reduced to a row of spots, one to each of the segments two to five; styliform portion of third antennal joint nearly twice as long as the thickened basal part, face greatly retreating below, proboscis not projecting; scutellum rounded behind, bristly, shining, the margin destitute of scales; hind femora with numerous long hairs, and sometimes a few bristles below. Wings pure hyaline, apical two-thirds of subcostal cell yellow. Length 5–9 mm.

Southern California. Eleven specimens, in April and May.

Aphœbantus vulpecula n. sp. ♂ ♀.—Same as *catulus* with these exceptions: Tibiæ and base of tarsi sometimes yellow; black scales on abdomen forming a transverse pair of spots on each of the segments two to four, and sometimes on five and six; styliform portion of third antennal joint scarcely longer than the thickened basal part; proboscis slightly projecting beyond the epistoma; hind femora with several short bristles, but no long hairs below. Length 6 mm.

Southern California. Three males and three females, in April and May.

Aphœbantus leviculus n. sp. ♂ ♀.—Same as *catulus*, except the following: Tibiæ and base of tarsi sometimes yellow; abdomen destitute of black scales; styliform portion of third antennal joint only as long as the thickened basal part; face not retreating below, almost perpendicular; hind margin of scutellum scaly; hind femora with a few bristles, but no long hairs below. Length 4–6 mm.

Southern California. Five males and five females, in April and May.

Aphœbantus fucatus n. sp. ♂.—Black, knob of halteres, tibiæ and base of tarsi yellowish. Pile of head and body, also bristles and scales of thorax and scutellum, and scales of abdomen, white or yellowish; front and face destitute of scales, face unusually short, slightly retreating below, proboscis projecting the length of its labellæ beyond the epistoma; styliform portion of third antennal joint twice as long as the thickened basal part; scutellum opaque, rounded behind, whole surface pilose and scaly; wings hyaline, the costal, first and second basal, anal except at apex, also bases of marginal, first submarginal and of axillary cells, smoky brown; hind femora with several long hairs below; eyes of male contiguous. Length 4 mm.

Southern California. Three males, in April.

THLIPSOGASTER Rondani.

Two species, which I refer to this genus, possess the following characters in common: Eyes contiguous in the male, widely separated in the female; three ocelli present. Antennæ as long as the head, first joint slender, not thicker than the second, the latter a trifle longer than wide, the third slightly longer than the first two, bare; terminal style very small, tipped with a minute bristle. Front flat, face projecting on same plane as the front. Proboscis projecting beyond tip of antennæ, labellæ narrow, palpi not reaching oral margin. Scutellum convex. One marginal, two submarginal and four posterior cells, the first posterior cell closed at or near the margin of the wing, the other posterior cells open, as is also the anal; first basal cell slightly longer than the second, last section of the fourth vein straight, no cross-vein connecting the anterior branch of the third vein with the second or third veins; furcation of second and third veins occurs before the base of the discal cell; marginal cell not greatly expanded at its apex, second vein meeting the costa at an acute angle. All tibiæ and the posterior femora provided with bristles, pulvilli distinct, no empodium.

Thlipsogaster syndesmus n. sp. ♂ ♀.—Opaque black, the front, face, cheeks, first two antennal joints, palpi, femora, tibiæ, base of tarsi, halteres, entire abdomen of female, but only the apex in the male, yellow. Pile and tomentum of front, face and antennæ yellow in the female, that on ocellar triangle, antennæ and face largely black in the male; a dense cluster of snow white tomentum on each side of antennæ; pile and tomentum of occiput, thorax, pleura, coxæ, scutellum, abdomen and venter yellowish white, bristles of legs black. Wings hyaline, costal cell yellowish. Length 5–6 mm.

Southern California. One male and three females.

Thlipsogaster ater n. sp. ♂.—Opaque black, the tibiæ, apex of femora and base of tarsi, yellow; knob of halteres dark brown. Pile and tomentum

of head and entire body yellow, except the pile on ocellar triangle, antennæ, face, and many on the pleura and coxæ, which are black, a dense cluster of snow-white tomentum on each side of the antennæ; bristles of legs black. Wings hyaline, costal cell yellowish. Length 6 mm.

Louisiana (Morrison). Three specimens.

GEMINARIA n. gen.

Body slender, head much broader than high, eyes contiguous in the male, widely separated in the female; antennæ longer than the head, first joint as long as the third, not more robust than the second, the latter scarcely longer than broad; third joint tapering on its apical half, the apex blunt and destitute of a style; proboscis projecting forward, slightly longer than the head and thorax united; palpi cylindrical, reaching slightly beyond tip of antennæ; scutellum divided by a deep, longitudinal groove into two hemispheres; furcation of second and third vein occurs before base of discal cell; first basal cell much longer than the second; anterior branch of third vein connected with the second by a cross-vein, forming three submarginal cells; second vein before its apex abruptly bent forward nearly at a right angle, marginal cell greatly expanded at its apex; four posterior cells, all of them open, as is also the anal; costa in the male furnished with small, teeth-like processes; tibiæ bristly, pulvilli present, no empodia. Type, *Lordotus canalis* Coq.

Geminaria pellucida n. sp.—Same as *canalis*, with these exceptions: Eyes destitute of a purplish line,—present in *canalis*, dividing each eye into two parts (an upper and a lower) of nearly an equal size. Wings with only two brown clouds, situated at bases of first and fourth posterior cell, whereas in *canalis* there are at least eight brown spots in each wing. Length 6 mm.

Southern California. A single male, in May.

LORDOTUS Loew.

The North American species are as follows:

1.—Second antennal joint nearly twice as long as broad, costa of male beset with teeth-like processes, pile of face and breast wholly white or yellowish..2.
Second antennal joint scarcely longer than wide.....4.
2.—Wings having the first basal cell and base of the marginal yellowish.....3.
Wings, except in the costal cell, wholly hyaline, abdomen destitute of a cross-band of black pile.....**diversus** Coq.
3.—Femora wholly yellow, a cross-band of black pile on the fourth abdominal segment.....**zona** Coq.
Femora partly black.....**gibbus** Loew.

4.—Wings, except in the costal cell, wholly hyaline.....6.
Wings marked with brown in other portions than the costal cell, breast destitute of black pile..... 5.
5.—Wings hyaline, costal, first basal, base of marginal and of first submarginal cell brown, a brown cloud at base of fourth posterior cell.
bucerus n. sp.
Wings hyaline, marked with several brown clouds, costa of male destitute of teeth-like processes.....**planus** O. S.
6.—Pile of face, breast and venter white or yellowish.....7.
Pile of face, antennæ, breast and venter largely black, costa of male destitute of teeth-like processes.....**apicula** Coq.
7.—Abdomen shining, its tomentum confined to the sutures of the segments, proboscis scarcely longer than the thorax.....**miscellus** Coq.
Abdomen subopaque, uniformly tomentose, proboscis nearly as long as the thorax and abdomen united, costa of male destitute of teeth-like processes.....**juncens** Coq.

Lordotus bucerus n. sp. ♀.—Black, the knob of halteres yellow. Pile of head yellowish, that on upperside of first and on both sides of second antennal joint, also that on palpi black; pile of thorax, scutellum and abdomen yellow, except on posterior half of fourth segment, which is black; the appressed, crinkled tomentum whitish; wings hyaline, costal, first basal, basal two-thirds of marginal and base of first submarginal cell smoky-brown; veins at base of first and fourth posterior cells clouded with brown; second antennal joint scarcely longer than broad. Length 10 mm.

Southern California. Two males, in April. Nearest related to *gibbus* Loew, but with a shorter second antennal joint, pile of antennæ largely black, instead of being wholly yellow, and the tibiæ are black instead of yellow; the thorax is also much less gibbous.

BOMBYLIUS Linn.

Bombylius fratellus Wied. is a synonym of *B. major* Linn. Both of these forms occur in California as well as in the Atlantic States and in Germany; every possible gradation occurs between them, so that *fratellus* cannot even be regarded as a variety.

ANASTŒCHUS O. S.

Anastœchus barbatus O. S. is a synonym of *A. nitidulus* Fabr. Specimens of this latter were received from V. von Röder, of Germany, and agree in all respects with my Colorado examples.

GERON Meigen

Geron albidipennis and *G. vitripennis* are synonyms of *Geron senilis*. *Geron macropterus* is the male of *calvus*. *G. holosericeus* Walker has not been identified. The other species from North America are contained in the following table:

1.—Last section of third vein as long as the preceding section.....1.
Last section of third vein never more than two-thirds as long as the preceding section, third antennal joint narrow and tapering to the tip, palpi never reaching beyond epistoma.....2.
2.—Femora largely or wholly black.....3.
Femora yellow, front of female yellow tomentose in the middle.
? rufipes Macq.
3.—Front of female wholly white tomentose, small cross-vein distinctly beyond middle of discal cell.....**senilis** Fabr.
Front of female yellow tomentose in the middle, small cross-vein in middle of discal cell.....**subauratus** Loew.
4.—Abdomen slender, nearly four times as long as wide, palpi never projecting beyond epistoma.....5.
Abdomen robust, never more than twice as long as wide, third antennal joint never sharp pointed.....6.
5.—Femora and base of venter largely yellow.....**calvus** Loew.
Femora and venter wholly black.....**hybus** n. sp.
6.—Abdomen opaque.....7.
Abdomen shining black, the segments margined behind with yellow.
cinctura n. sp.
7.—Abdominal segments never bordered posteriorly with yellow.....8.
Abdominal segments bordered posteriorly with yellow.....**fasciola** Coq.
8.—Palpi less than one-fourth as long as the proboscis.....**trochilus** n. sp.
Palpi more than one-half as long as the proboscis.....**capax** Coq.

Geron trochilus n. sp. ♂ ♀.—Opaque, black, only the halteres yellowish white. Head and body gray pollinose, a short vitta in front of ocelli in the female, four stripes on the thorax, extreme base of scutellum greatly expanded backward in the middle, and extreme base of each abdominal segment, opaque black; pile of head and body, and of all their members, whitish. First antennal joint slightly over twice as long as the second, the third joint more than twice as long as the first, of nearly an equal width, slightly widest just before the middle, the apex rounded, except at the upper angle, which is cut away, the portion thus cut out nearly equaling one-third the width of the joint; on upperside of third joint near its base are four or five stout bristles, which are about one-fourth as long as the width of this joint; bristles on upperside of first joint (there are none on the underside) shorter than the width of this joint. Proboscis as long as the head and thorax united. Wings hyaline, apex of subcostal cell yellowish, last two sections of third vein subequal in length, apex of second submarginal cell less than half the length of that cell, posterior cross-vein strongly bowed outwardly. Length 3-5 mm.

Southern California. One male and two females, in April.

Geron cinctura n. sp. ♀.—Same as *trochilus*, with these exceptions: Apex of each abdominal segment, both dorsally and ventrally, except the first one, yellowish white. Body shining, except the pleura, scutellum, three stripes in middle of thorax and its lateral margins, which are lightly gray pollinose; third antennal joint one and a half times as long as the first, destitute of bristles, first joint with bristles on both its upper and lower sides, many of these being three times as long as the width of this joint.

♂.—Same as the ♀, except that the bristles of antennæ, pile of face and several on the vertex are black and the thorax is destitute of stripes of gray pollen. Length 4 mm.

Southern California. A single male and female, in April and July.

Geron hybus n. sp. ♂ ♀.—Opaque black, knob of halteres light yellow. Head and body light gray pollinose, two spots on upper part of occiput, two stripes on thorax, scutellum, except each side, and abdomen except first segment, opaque black. Pile and tomentum of head white, a few of the pile on antennæ and occiput black; depressed tomentum on upperside of body of female yellow (wanting in the male), the pile white, with a few black ones intermixed. First antennal joint over twice as long as the second, both are provided with bristles above and below; the female these scarcely exceed the length the width of these joints, but in the male they are nearly three times as long; third joint three times as long as the first, gradually tapering to the tip, destitute of bristles. Proboscis slightly longer than the thorax. Wings hyaline, apex of subcostal cell yellowish, last two sections of the third vein subequal in length, posterior cross-vein sinuous. Length 4 mm.

Southern California. Three males and four females, in July.

REVISION OF THE GENERA AND SPECIES OF DESMORI OF NORTH AMERICA.

BY WILLIAM G. DIETZ, M.D.

As an explanation for the publication of a paper on the above-named subtribe of Curculionidæ, so shortly after the same subject has been treated of by Capt. Thos. L. Casey, in his "Coleopterological Notices IV," the following remarks are offered. Unaware of that author's work in the same field, I had made considerable progress in my investigations when, by mere accident, I learned that the above-mentioned paper was already in the printer's hands, and would appear shortly. As soon as published, the author very kindly sent me a copy. A careful perusal of the article on *Smicronyx*, in which genus the author has included, with the exception of three, all the species properly belonging to the subtribe under consideration, proved that the results of our investigations were greatly at variance. Of the two species, *discoideus* and *amœnus*, erroneously placed by LeConte in *Pachytychius*, which is not represented within our faunal limits, Casey says: "they are entirely identical in all structural characters, which can in any way be considered of generic worth, with the form described by that author as *Smicronyx corpulentus* and the other species placed in *Smicronyx*." As shown further on in the body of this paper, *corpulentus* assuredly should have been placed next to *discoideus*, by LeConte, nor does it invalidate the claim made in this paper that, while they should not and could not properly be retained in *Pachytychius*, they should form the type of a new genus. Elsewhere in the above cited publication* the author, in speaking of *Telesicles* Champ., makes the following remark: "That generic differences often depend more upon general facies or appearance, than upon any decided modification of special organs." This alone, if for no other reason, would be sufficient to separate the above-named species as distinct from *Smicronyx*. *Desmoris*, although founded by LeConte on characters of indifferent value as far as they have reference to a distinction from *Smicronyx*, is nevertheless valid, as may be seen by referring to the synoptical table of genera. Added

* Col. Not. iv, p. 123.

to these, the recognition of characters not mentioned by Casey and a number of undescribed forms in the collections of others as well as my own, have been the reasons for finishing the work and submitting it to the criticism of those capable of judging.

Hazleton, Aug. 26, 1893.

Family CURCULIONIDÆ.

Tribe Erirhinini.

Subtribe *Desmori*.

But little need be said here to distinguish the subtribe Desmori* from the other subtribes of the Erirhinini. The beak separated from the head by a transverse groove or constriction, and the claws connate to a greater or less extent, render it easy of recognition.

Beak variable, moderately robust (especially in *Smicronyx* proper) to very slender (*Dermoris*); always longer and more slender in the females; scrobes oblique to a variable extent, confluent beneath.

Antennæ variable, a little stouter and generally inserted two-fifths from the apex, rarely at the middle; in the males, more slender and generally inserted behind, more rarely at the middle, in the females (subbasal in some *Desmoris*); funicle seven-jointed, club generally small, ovoidal, large and more elongate in *Pachyphanes*.

Head moderately large, spherical. Eyes transversely oval, coarsely granulated, separated beneath, except in *Synertha*.

Prothorax differing in form, narrowed anteriorly and constricted at or behind the apex in the great majority of the species; postocular lobes generally distinct; scutel small, invisible in some species.

Elytra wider at the base than the prothorax, differing greatly in form and convexity, striate, striæ remotely punctured.

Prosternum generally short in front of the coxæ, emarginate; simple or transversely impressed in some, or with antecoxal ridges limiting a sulcus more or less distinct, in others. Mesosternum declivous; metasternum moderately long.

Ventral segments unequal, third and fourth shorter than the others, fifth rounded at the apex; second, third and fourth suture curved backward, but not angulated at the sides, in almost all the species.

* Etymologically, the term Desmori is proper, and should be used instead of Desmorhines.

Legs never very stout, generally moderate, femora more or less clavate, mutic; tibiæ unguiculate, posterior mucronate in *Desmoris;* tarsi slender, with the third joint bilobed in almost all the species, fourth greatly differing in length, shorter than the three preceding joints, except in *Promecotarsus,* where it is equal to the latter; claws connate to a variable extent, greatest with the claws very small in *Smicronyx* proper, and some others, least in *Promecotarsus.*

The vestiture of these insects consists of scales, of varying density, intermixed with squamiform or hair-like scales. The sexes may generally be distinguished by the formation of the beak and the insertion of the antennæ.

SYNOPSIS OF GENERA.

Fourth tarsal joint shorter than the three preceding joints combined, form variable. Plate vii, figs. 4 and 4*a*.

Eyes not contiguous beneath.

Antennal club large, elongate, always distinct from the funicle. Plate vii, fig. 1*a*.....**Pachyphanes.**

Antennal club small, ovoidal, often subcontinuous with the funicle. Plate vii, fig. 3.

Eyes more widely separated beneath; posterior tibiæ mucronate. Plate vii, figs. 3♂ and 5*a*.....**Desmoris.**

Eyes narrowly separated beneath; all the tibiæ unguiculate. Plate vii, figs. 3*a* and 5*a*.....**Smicronyx.**

Eyes contiguous beneath. Plate vii, fig. 3*c*.....**Synertha.**

Fourth tarsal joint about as long as the three preceding joints; form subcylindrical. Plate vii, fig. 4*b*.....**Promecotarsus.**

PACHYPHANES n. gen.

The type of this genus is *P. discoideus* Lec., referred by LeConte to *Pachytychius* Jek. The absence of the basal constriction of the beak, and the simple, free claws, exclude the latter genus from the tribe under consideration as already observed by Casey.

The genus is characterized by the rather large, elongate antennal club, the antennæ inserted two-fifths from the apex (♂), or a little before the middle (♀). The species are stout, convex insects, beak strongly curved, especially in the males, second joint of funicle longer than the third, strongly elongate in some of the species, outer joints scarcely or very little wider, always distinct from the club. Prothorax large. Elytra ample, convex, at most one-half longer than wide. All the tibiæ distinctly unguiculate, claws rather small, connate to a variable extent.

I have separated the species into two groups, differing considerably in their general habitus as follows:

Fourth tarsal joint of anterior tarsi much longer than the third. Very densely scaly.....discoideus Group.

Fourth tarsal joint of anterior tarsi not, or very little longer than the third. Scaly vestiture not dense (except *amœnus*), condensed, forming lines or transverse fasciæ.....amœnus Group.

discoideus Group.

The species comprising this group are very robust and densely scaly, the scales form either distinct patterns, or more rarely are nearly unicolorous, the fourth tarsal joint is long and slender, except in the first two species; the claws are connate for scarcely one-half their length except *centralis*, where they are connate almost to the tip.

The species may be readily distinguished as follows:

Third tarsal joint broadly bilobed, tarsi less slender.

Scutellum not visible; scales forming pattern on the upper surface. Plate vii, fig. 1.....**discoideus.**

Scutellum distinct, triangular, scaly; scales forming patterns on the upper surface. Plate vii, fig. 2.....**carus.**

Scutellum distinct, small, glabrous.

Prothorax much wider than long, claws not connate beyond the middle. **corpulentus.**

Prothorax not much wider than long, claws connate nearly to the apex. **centralis.**

Tarsi narrow, long and slender, third joint not broadly bilobed, prothorax scarcely wider than long.....**lateralis.**

P. discoideus Lec.—Oval, robust, pitchy black, densely clothed with broadly oval, pale yellowish scales marmorate on the upper surface with patterns of pitchy black. Beak rather robust, regularly curved, as long as (♂), or a little longer (♀) than head and prothorax; densely punctured with an indistinct, median elevated line, extending from base to the insertion of the antennæ, sparsely clothed with short squamiform pubescence; basal tufts obsolete, constrictions distinct, but not deep; scrobes strongly oblique. Antennæ slender, inserted two-fifths from the apex (♂) or slightly before the middle (♀), second joint of funicle a little more than one-half as long as the first joint and less than one-half longer than the third; club strongly elongate, densely pubescent. Head finely punctured and pubescent. Prothorax one-half wider than long, strongly and rather suddenly narrowed anteriorly, feebly constricted at the apex, sides regularly rounded, surface densely and rather coarsely punctured, punctures concealed by the scales which are larger than elsewhere; a broad, irregular median vitta and a narrow, irregular and less distinct lateral line, connected by another transverse band before the middle, pitchy black; scutel not visible. Elytra one-third wider at base than the prothorax, and about one-half longer than wide; sides broadly rounded for two-thirds their length, thence more rap-

idly to the apex, humeri prominent, rounded; distinctly striate, very distinctly punctured, punctures concealed by the scales; a large subquadrate space extending from base to behind the middle, an irregular spot each side behind the middle and a few irregularly scattered spots, pitchy black. Prosternum moderately long in front of coxæ, concave without distinct antecoxal ridges. Legs moderately slender; tibiæ slender, and, except the posterior, scarcely widened to apex, the latter strongly armed; tarsi moderately stout, densely pubescent, third joint deeply bilobed, fourth not very slender, projecting beyond the third about the length of the latter; claws small, connate fully one-half their length. Length 3.0—3.5 mm.; 0.12 0.12 inch. Plate vii, fig. 1.

Hab.—N. Y., Ill., Tex. Coll. Dr. Horn and Mr. Ulke.

Four specimens are before me. Very similar to the next. Casey describes the legs as rufopiceous, which is not the case in any of the specimens before me.

P. carus n. sp.—This species agrees with the preceding in size, form and sculpture, the only essential difference being the quite distinct, squamous scutellum. The prothorax is rather more strongly rounded on the sides, and not at all constricted at the apex. Elytra less than one-third wider at base than the prothorax, striæ and punctures less distinct, the latter more closely approximate. The pattern on the upper surface is very similar; the lateral spot on the elytra almost obsolete, with some irregular, wavy lines of dark brown scales. Plate vii, fig. 2.

Hab.—California.

A single male specimen in Mr. Ulke's collection.

Whether the evident absence of the scutel is constant, more extensive series of specimens than those at my disposal alone can decide.

P. corpulentus Lec.—Oval, robust, pitchy black, legs and tip of beak fuscous, densely clothed with yellowish or grayish white, oval scales, disc of prothorax and a large, ill-defined sutural space on the elytra, dark brown. Beak cylindrical, basal tufts indistinct, constriction not deeply impressed; male robust, curved, slightly thickened beyond the middle, somewhat shining, rather densely punctured and thinly scaly from base to middle, more remotely punctured and shining beyond the insertion of the antennæ; female long and more slender, slightly curved near the base, nearly straight beyond, rather shining, not densely and rather finely punctured, thinly scaly near the base; scrobes oblique. Antennæ inserted two-fifths from the apex (♂), or a little before the middle (♀), second joint of funicle elongate, longer than the third. Head punctured, front sparsely scaly. Prothorax one-half wider than long, strongly and regularly rounded on the sides, narrowly constricted at apex, latter a little narrower than the base, densely punctured, punctures concealed by the scales, a broad median stripe and less distinct lateral spot of dark scales; scutel small, distinct, glabrous. Elytra fully one-third and rather suddenly wider at the base than the prothorax, sides slightly rounded and parallel for one-half their length, thence rather gradually narrowed to apex, striæ distinct, punctures not evident, concealed by the scales; interstices wide, very slightly convex with a row of

fairly distinct, suberect setæ. Prosternum canaliculate with the antecoxal ridges rather distinct. Tibiæ slender, armature not very conspicuous; tarsi moderately stout, third joint deeply bilobed; fourth long and slender, projecting nearly twice the length of the preceding; claws moderately large, connate for less than one-half their length; a short vitta of paler scales on the base of the third elytral interspace. Length 2.75—3.0 mm.; 0.11—0.12 inch.

Hab.—Texas, La., Ark.

Very distinct from the preceding two species, with which it has been confounded in collections. Differs by its smaller size, small glabrous scutel, different arrangement of patterns, the more slender and somewhat shining beak and the more slender and longer fourth tarsal joint.

Specimens vary in extent of the dark spots, which become almost obsolete in some as well as the dark thoracic vitta. Several specimens in my collection, collected by Wickham at Big Springs, Tex., have the elytra broadly rounded on the sides, and the interstitial setæ scarcely perceptible.

P. centralis n. sp.—Very similar in form and coloration to the preceding, from which it differs in the following characters: Prothorax less transverse, more broadly rounded on the sides; the dark elytral spot much wider at base; interstitial setæ almost imperceptible; fourth tarsal joint projecting beyond the third joint about the length of the latter; claws rather small and connate almost to the apex. The latter character is remarkable here, and at once distinguishes this species from any other of the present genus.

A single ♂ specimen in my coll. from Texas.

P. lateralis n. sp.—Oblong-oval, pitchy black; vestiture rather dense, consisting of small, oval, yellowish gray and brown scales. Beak moderately stout, regularly curved and longer than head and prothorax; densely punctured and finely pubescent in its basal third, more shining and more finely punctured beyond, very slightly tapering from base to apex, basal tufts nearly obsolete, constrictions not deep; scrobes less oblique. Antennæ inserted a little before the middle (♀), first and second joints of funicle elongate, slender, former about one-third longer than the latter, and this nearly twice as long as the third; clava elongate-ovoidal, acuminate, basal joint sparsely pubescent, shining. Head not shining, front densely punctured, pubescent. Prothorax about as long as wide at base, moderately rounded on the sides, broadly but not strongly constricted at the apex, rather remotely punctured on the disc in front, which is shining, more densely punctured on the side and along the base, punctures rather large, but superficial, transversely oval in the basal third, giving an appearance of concentric rugæ; scaly vestiture sparse, a little more dense on the sides; scutel small, distinct. Elytra fully one-third wider at base than the prothorax; humeri prominent, sides parallel and nearly straight for two-fifths their length, thence gradually narrowed to the apex, striæ distinct, punctures not evident, interstices wide, flat; suberect setæ scarcely visible, sides grayish white, first to fourth interspaces, except a short basal vitta on the third, dark brown. Pro-

sternum canaliculate, antecoxal ridges distinct. Legs moderately long, tibiæ slender, slightly widened at the apex, apical armature prominent, except the *posterior* tibiæ; tarsi very slender, first and second joints elongate, third rather small, not broadly bilobed, less than twice as wide as the preceding, fourth joint very slender and long, projecting nearly twice the length of the fourth; claws moderate, connate, about one-third their length. Length 2.75 mm ; 0 11 inch.

Hab.—Texas. One female specimen in Mr. Ulke's collection.

A distinct species, less robust than the other members of this group, from all of which it is distinguished by its very slender tarsi; the scales on the upper surface are smaller than usual in this group and less crowded. From *S. pleuralis* Cas. it appears to differ by the legs not being red and its larger size.

amœnus Group.

The species which I have included in this group are readily distinguished from those of the preceding by the fourth joint of the anterior tarsi, which is scarcely longer than the third and the less dense vestiture, condensed in lines or transverse bands. They are easily distinguished as follows:

First and second joints of funicle long and slender; club large, strongly elongate; tarsi slender, first joint elongate; prothorax not wider than long; claws connate at most one-half their length.

Fifth interspace densely scaly; third tarsal joint less than twice as wide as the preceding..... **lineolatus.**

A broad, irregular stripe of pale scales extending from humerus to the suture behind the middle; third tarsal joint nearly thrice as wide as the second. **triangularis.**

First and second joints of funicle elongate, not slender; club smaller and less elongate; tarsi stouter, first joint not elongate; prothorax wider than long; claws connate beyond the middle; elytra tesselate.....**amœnus.**

P. lineolatus Casey.—Oblong-oval, black, legs, especially the tibiæ reddish, tarsi black; scales small, white, mottled with brown, more dense on abdomen and thoracic side pieces. Beak rather strongly curved, especially nearer the base, not very robust; male somewhat shining and rather densely punctured, thinly pubescent, a little longer than head and prothorax; considerably longer than head and prothorax, and more shining in the female; scrobes oblique; basal tufts and constriction feeble. Head very finely alutaceous, front remotely punctulate, scaly. Antennæ very slender, inserted two-fifths (♂) or a little before the middle (♀), rufopiceous; first and second joints of funicle elongate and slender, subequal, latter one-third longer than the third, this longer than the fourth; clava elongate-ovoidal, densely pubescent. Prothorax a trifle wider than long, rather broadly rounded on the sides, broadly constricted at the apex, a little wider at the base than at the apex; surface densely punctured, less so on the disc before the middle, punctures variable in size, rather coarse, transversely oval, a smooth discal median line, more or less distinct. Elytra one-third wider

at base than the prothorax, imperceptibly widened to behind the middle, thence broadly rounded to the apex; humeri prominent, scutel distinct, glabrous; striæ and punctures distinct, the latter rather remote, interstices flat, suberect setæ white, very fine; scales small, rather closely placed, a short line at the base of third, one on the entire fifth interspace and humeral line white, rest of surface tesselated with white and brownish scales. Prosternum broadly sulcate, antecoxal ridges not well defined. Legs long and slender; tibiæ slender, nearly parallel, posterior widened toward the apex, apical hooks distinct; setulose along apical half of inner margin; tarsi slender, first joint much longer than wide, third broadly bilobed, nearly twice as wide as the preceding, fourth joint about one-half longer than the third; claws connate for less than one-half their length. Length 3.25—4.0 mm.; 0.13—0.16 inch. Plate vii, figs. 1 and 4.

Hab.—Texas, Illinois, Missouri.

A very distinct species, closely related to the next only, from which, however, it is sufficiently easy to distinguish. The white scales are more persistent, while the darker scales are readily abraded.

P. triangularis n. sp.—Elongate-oval, moderately robust, pitchy black. Beak, antennæ and legs bright ferruginous; beneath more densely, above very sparsely clothed with small white scales, which are scarcely noticeable except on the elytra, where they form an irregular, broad, oblique stripe, extending from the humerus toward the suture behind the middle. Beak rather stout, cylindrical, curved, densely punctured, subopaque, subcarinate, indistinctly striate each side, slightly depressed beyond the insertion of the antennæ; scrobes strongly oblique; antennæ inserted two-fifths from apex, slender; first and second joints of funicle elongate, former rather stout; clava ovoidal, not strongly elongate. Head finely alutaceous, remotely punctulate with a few scattered piliform scales. Prothorax a little wider than long, narrowed anteriorly, rounded on the sides, broadly but rather feebly constricted at the apex; surface densely punctured, punctures round or slightly oval, superficial, those of the disc bearing a small, white filiform scale, those on the sides and base larger, oval scales; a feeble indication of a smooth dorsal line. Elytra one-third wider at base than the prothorax, nearly subtriangular in general outline, broadly rounded from humerus to apex; striæ distinctly and rather remotely punctured; interstitial setæ obsolete. Legs long and slender, tibiæ nearly parallel, posterior slightly incrassate towards the apex, apical armature strongly marked; tarsi slender, first joint elongate, second scarcely as wide as the former, third very broadly bilobed, and about three times as wide as the second, the fourth less than one-half longer than the third; claws connate for more than one-half their length. Length 2.75—3.0 mm.; 0.11—0.12 inch. Plate vii, figs. 7 and 7*a*.

Hab.—Texas.

Five specimens in Dr. Horn's collection are before me, easily distinguished from *lineolatus* by the different arrangement of the elytral scales, the bright ferruginous legs, very broadly bilobed third tarsal joint, and the claws connate beyond the middle.

P. amœnus Say.—Oval, robust, pitchy black, densely clothed with white and dark brown scales. Beak stout, cylindrical, moderately curved, rather

closely punctured; a well-marked median carina with a moderately impressed line about the insertion of the antennæ, substriate each side; opaque in the male, feebly shining in its distal half in the female; scrobes commencing one-third from the apex; basal tufts prominent, incision deep Head very finely rugulose, front punctured, scaly; first joint of funicle fully one-half longer than the second, the latter less than one-half longer than the third; clava not strongly elongate, ovoid-elliptic, densely pubescent. Prothorax transverse, strongly narrowed in front, broadly but not distinctly constricted at the apex, strongly rounded on the sides behind the middle, slightly narrowed posteriorly; surface densely and rather coarsely punctured, punctures elongate, subconcentric, the intervening ridges giving the appearance of irregular rugæ, a smooth, narrow median line before the middle more or less distinct, two distant discal vittæ and sides white; scutel very small, glabrous. Elytra but little wider at the base than the prothorax, broadly ovate, sides broadly rounded to near the apex, striæ deep, punctures distinct, humeri quite prominent, rounded, interstitial setæ consisting of small, suberect scales; humeri, basal line on the third interspace and irregular spots and wavy lines on the disc white. Prosternum distinctly channeled, antecoxal ridges distinct. Legs rufopiceous, not very slender; tibiæ feebly biemarginate and setulose within, anterior curved outward, their hook quite prominent, middle and posterior feebly armed; tarsi stout, pubescent; claws stout, small, connate one-half their length. Length 2.25—2.75 mm.; 0.09—0.11 inch. Plate vii, figs. 7*a* and 5*a*.

Hab.—District of Columbia, Pennsylvania, L. Superior, Dakota.

A very distinct species not readily confounded with any other of this tribe. The pale scales on the upper surface are larger than the darker, but vary greatly in size and distribution. In one of Mr. Ulke's specimens no difference in size is discoverable.

DESMORIS Lec.

While the separation of this genus from *Smicronyx* as established by LeConte on the relative length of the first and second joints of the funicle would no longer be valid, its retention is fully warranted by a due appreciation of characters heretofore overlooked, and which are set forth in the synoptical table of genera.

The beak, while comparatively robust, nearly straight, punctured and opaque in the males, attains its greatest development in length in the females, where it is very slender, filiform and polished in its entire length. Antennæ long and slender, especially in the females, the second joint of funicle longer than the third in all, except *flavicans;* the club is small and entirely pubescent in some, or the basal joint glabrous in others. The eyes are more widely separated beneath, except *floridanus*, than elsewhere. Prothorax narrowed anteriorly and constricted at the apex in most of the species, generally with a smooth median line. Prosternum never very short in front

of the coxæ, emargination moderate. Legs and tarsi slender, third joint broadly bilobed, fourth long and slender; claws rather long, connate at the base.

Why Dr. LeConte should describe the claws as being small and connate nearly to the tip is difficult to comprehend. From the great length of the rostrum in the female the genus approaches rather to *Balaninus* than to any other, and their habits are in all probability identical. The genus as here constructed includes *S. sordidus, fulvus* and *flavicans.*

The species, although closely related, may readily be distinguished by means of the following analytical table:

Large species, antennæ inserted one-third from the apex (♂) or about the middle (♀); scales ochreous, mottled with brown.
First joint of funicle not perceptibly longer than the second, prothorax strongly narrowed anteriorly. ..... **scapalis.**
First joint of funicle distinctly longer than the second; prothorax not strongly narrowed in front ..... **compar.**
Antennæ inserted a little before the middle (♂), or one-third from the base (♀).
First and second joints of funicle equal, or nearly so; first joint at most one-fourth longer than the second; scales unicolorous; gray, or grayish white.
Very robust, scales very small, not at all crowded; prothorax not wider than long, not constricted at the apex; antecoxal ridges distinct. **obesus.**
Less robust, scaly vestiture dense.
Larger, first joint of funicle one-fourth longer than the second. **montanus.**
Smaller species; first and second joints of funicle long and slender, scarcely differing in length.
Prothorax wider than long, strongly rounded on the sides and constricted at the apex ..... **pervisus.**
Prothorax scarcely wider than long, broadly rounded on the sides and not constricted at the apex ..... **incertus.**
First joint of funicle distinctly longer than the second.
Very robust, prothorax not constricted at the apex, scales on elytra mottled with brown ..... **floridanus.**
Less robust; moderately convex, beak broadly impressed before the basal constriction, scales unicolorous; gray, or grayish white.
Prothorax a trifle wider than long.
Larger, scales more persistent, posterior tibial mucro more evident. **constrictus.**
Smaller, scales easily abraded, posterior tibial mucro almost obsolete. **sordidus.**
Small size, prothorax much wider than long ..... **humilis.**
More elongate, subdepressed, scales unicolorous, fulvous or yellow.
Second joint of funicle longer than the third, scales fulvous... **fulvus.**
Second joint of funicle not longer than the third, scales yellow. **flavicans.**

D. scapalis Lec.—Oval, densely covered above and beneath with small, almost orbicular, yellowish scales, mottled above with pale brown. Beak long and slender, as long as (♂) or longer (♀) than head and prothorax, feebly curved, slightly dilated at tip, thinly scaly from base to insertion of antennæ, finely striate, basal tufts small; scrobes commencing one-third (♂) from the apex, or a little before the middle (♀); a punctured groove on the sides in front of the scrobes. Antennæ slender, first and second joints of funicle long, slender and about equal in length; clava acuminate, densely pubescent. Head small, glabrous; front punctured and pubescent. Prothorax wider than long, strongly narrowed anteriorly and feebly constricted at the apex; rounded on the sides, densely and finely punctured; a broad, dark stripe each side of median line, the latter distinct, abbreviated near the base. Elytra fully one-third wider than the prothorax, ovate, one-half longer than wide; humeri rounded, striæ distinct, distantly punctured, interstices nearly equal throughout, setæ small, squamiform. Legs moderately stout, anterior and middle tibiæ slender, posterior incrassate toward the apex and slightly curved in the female, armature very distinct. Length 4.25—5.0 mm.; 0.17—0.20 inch. Plate vii, fig. 5.

Hab.—Kansas.

A very distinct species, closely related to the following.

A ♂ and ♀ specimen in Dr. Horn's collection.

D. compar n. sp.—Oval, robust, pitchy black, legs rufopiceous, densely clothed above and beneath with small oval scales, more elongate and filiform on the disc of the prothorax, yellowish, mottled with pale brown. Beak cylindrical, slender, nearly straight; rather densely punctured and pubescent near the base, finely punctulate beyond the insertion of the antennæ, not striate; basal tufts feeble; scrobes commencing about the middle. Antennæ slender; first joint of funicle at most twice as long as the second and a little stouter; clava ovoidal, base nearly glabrous, rest densely pubescent. Prothorax wider than long, rather strongly rounded on the sides, but little wider at the base than at apex, latter feebly constricted, densely and rather coarsely punctured; scales arranged to radiate from centre of disc, a pale indistinct line each side. Elytra fully one-third wider than the prothorax at its base, ovate, striæ distinct, punctures not evident with the scales intact, interstices becoming unequal near the base, third and fifth wider, fourth and sixth strongly narrowed, the latter scarcely attaining the base; interstitial setæ very small, almost imperceptible; humeri and a short basal line on the third interspace paler; disc mottled with spots and subtransverse, irregular bands of darker scales. Prosternum deeply emarginate, postocular lobes distinct. Legs, tibiæ and tarsi as in the preceding species.

Hab.—Illinois.

Very closely resembles *scapalis*, from which it is readily distinguished by the difference in length of the first two joints of the funicle, the prothorax more transverse and less narrowed in front, the inequality of the elytral interspaces and the scales being oval or even elongate in form.

A unique ♀ in Mr. Ulke's collection.

D. obesus n. sp.—Oval, robust, pitchy black throughout, sparsely but evenly clothed with small, oval, dirty gray scales, a little more elongate on the elytra and filiform on the thorax. Beak slender, curved, longer than head and prothorax, imperceptibly tapering from base to apex, smooth and shining, punctured and thinly covered with scales at the base. Antennæ inserted less than two-fifths from the base (♀), first and second joints of funicle elongate, slender and equal in length; clava ovate, basal joint glabrous. Head subopaque, finely alutaceous, front remotely punctate. Prothorax as long as wide, moderately narrowed anteriorly, but not constricted at the apex, broadly rounded on the sides, about as wide at middle than at the base; disc more remotely, sides densely and more coarsely punctured, filiform scales sparse on the disc, more dense on sides, median smooth line almost entire, distinct; prothoracic lobes feeble, indistinct. Elytra less than one-third wider at the base than the prothorax, humeri prominent, sides slightly rounded, impressed behind the latter; striæ deeply impressed, punctures distinct, not very remote, interspaces rather narrow, equal, suberect setæ very small. Prosternum deeply emarginate with antecoxal ridges; thighs rather strongly clavate; tibiæ slender, straight, posterior enlarged toward the tip, tarsi slender, claws moderately large, connate in basal third. Length 3.75 mm.; 0.15 inch.

Hab.—Nebraska.

A single ♀ specimen in Mr. Ulke's collection.

A very distinct species, not closely related to any other species of *Desmoris* known to me.

D. montanus n. sp.—Oblong oval, rufopiceous, clothed with small, grayish scales, a little more dense on the under surface than above. Beak regularly curved, rather stout in the male slightly tapering from base to apex, about as long as head and prothorax, scaly from base to antennal insertion, punctured beyond, subcarinate in almost its entire length; female very slender, nearly equal in thickness throughout, shining, finely punctured with a few scattered scales near its base; scrobes commencing two-fifths from the apex in the ♂ and one-third from the base in the ♀. Antennæ slender, first and second joints of funicle elongate, former about one-fourth longer than the latter; clava small, not densely pubescent, basal joint subglabrous. Prothorax about as long as wide, a little narrower at the apex than at the base, broadly rounded on the sides and not constricted at the apex; surface densely and rather finely punctured, dorsal line entire, not quite reaching the base; prothoracic lobes feeble. Elytra nearly two-fifths wider at the base than the prothorax; humeri rather prominent, sides parallel for two-fifths their length, then gradually narrowed to the apex, striæ distinct, distantly punctured, humeral spot and very short basal vitta on the third interspace, which is widened at base, whitish. Presternal emargination moderate, feeble antecoxal ridges. Legs ferruginous, rather slender, thighs clavate, tibiæ slightly enlarged at apex, more so on the posterior; armature marked, hook of anterior stout and projecting beyond the extremity; tarsi very slender, first tarsal joint nearly twice as long as wide; claws moderate, connate at base. Length 3.5 mm.; 0.14 inch.

Hab.—Montana. Two males and three females in Dr. Horn's collection are before me.

Closely allied to *constrictus* and *sordidus*, from which it differs by its rather large size, the relatively longer second funicular joint and the formation of the prothorax; the color of the derm is of a reddish brown color.

D. pervisus n. sp.—Elongate oval, pitchy black, distal half of rostrum, antennæ and legs rufous, not very densely clothed with small, oval, grayish white scales. Beak long and slender, regularly curved, less so in the male, cylindrical, basal constriction moderately deep, tufts small, distinct. Male: distinctly punctured and rather densely scaly from base to the antennal insertion, finely subcarinate, distal two-fifths nearly smooth, finely punctulate; scrobes commencing two-fifths from the apex, distinctly oblique. Female: more finely punctured and less densely scaly for fully one-third from the base, subcarinate; antennæ inserted two-fifths (♂) from the apex or one-third (♀) from the base, first and second joints of funicle elongate, slender and equal in length; clava rather elongate ovate, densely pubescent. Head finely punctured and sparsely squamous. Prothorax wider than long, moderately narrowed in front, rather broadly and feebly constricted at the apex, regularly and rather strongly rounded on the sides; surface rather coarsely and not very densely punctured, median smooth line well defined, extending from the anterior margin for three-fifths the length of the prothorax. Elytra less than one-third and rather suddenly wider than the prothorax at its base and nearly twice as long as wide, very feebly rounded on the sides, humeri prominent; striæ distinct, approximately though not very distinctly punctate; interspaces not wide, of equal width throughout, except at the base, where the second and third are a little wider, suberect setæ very small, inconspicuous, a short pale vitta at the base of the third interspace. Prosternum transversely impressed, postocular lobes obsolete. Legs not very slender; tibiæ moderately widened towards the apex, more so the posterior; tarsi rather stout, first joint scarcely longer than wide, third broadly bilobed, fourth not very long; claws small, connate in basal third. Length 3.0—3.25 mm.; 0.12—0.13 inch.

Hab.—Dakota. One male and three females in Dr. Horn's coll.

A very distinct species; might be confounded with *constrictus* and *sordidus*, from which it differs in the first and second funicular joints being equal, the beak not impressed before the basal constriction, the prominent humeri, the white basal line on the third interspace, the somewhat stouter tibiæ and dilated tarsi, and the antennal club entirely pubescent.

D. incertus n. sp.—Oblong elliptic, piceous, antennæ and legs rufous; densely clothed with rather large, oval, grayish or pale ochreous scales. Beak and antennæ as in the preceding species. Head punctured and scaly. Prothorax as long as wide, moderately narrowed in front scarcely constricted at the apex, feebly rounded on the sides, a trifle wider at the middle than at the base; sparsely and finely punctured along the middle, more densely on the sides, punctures more or less concealed by the scales except along the middle third, where the scaly vestiture is less dense, dorsal smooth line obsolete. Elytra nearly one-

third and rather suddenly wider than the prothorax at base and nearly twice as long as wide, sides nearly straight for one-half, thence gradually rounded to apex; humeri prominent; striæ impressed, punctured, interspaces about equal, not wide, third wider at the base, suberect setæ rather conspicuous; a line on the base of the third interspace and humeri paler. Legs and tarsi as in the preceding, latter a trifle more slender. Length 2.75—3.40 mm.; 0.11—0.14 inch.

Hab.—Dakota, Kansas, California. Coll. Dr. Horn and H. Ulke.

Four specimens before me; very closely related to the preceding, if not identical with it; it differs by the thorax being as long as wide, feebly rounded on the sides and the absence of the smooth thoracic line; the vestiture more dense, and the suberect setæ of the elytra longer and more conspicuous. More extended series may establish instability of these characters.

D. floridanus n. sp.—Oval, pitchy black, legs a little paler, clothed with small, oval, grayish white scales, not dense above and interspersed with dark, brownish scales on the elytra, denser on the underside. Beak not very slender, curved, coarsely punctured and scaly from base to the insertion of the antennæ, more remotely punctured, subcarinate with a stria each side, beyond; scrobes commencing about two-fifths from the apex. Head punctured, front scaly. Antennæ rather stout, first joint of funicle fully one-half longer than the second joint; clava ovate, entirely pubescent. Prothorax a little wider than long, rounded on the sides, moderately narrowed in front and not distinctly constricted at the apex; surface densely and rather coarsely punctured, median smooth line distinct, abbreviated on both ends; a pale, indistinct line each side of disc. Elytra one-third wider than the prothorax at its base and one-half longer than wide, distinctly striato-punctate, punctures distinct, interspaces subequal near the base, finely punctulate and transversely rugulose, setæ not evident; humeri and a basal line on third interspace paler. Prosternum not short in front of coxæ, transversely impressed, scarcely emarginate, postocular lobes feeble. Legs not very slender, anterior and middle tibiæ slightly widened at apex, posterior more distinctly incrassate toward the apex and slightly curved. Length 3.75 mm.; 0.15 inch.

Hab.—Florida. Two male specimens in Mr. Ulke's collection.

A distinct species, resembling *compar* in form, but a little smaller; it differs, aside from coloration, by the prothorax being more broadly rounded on the sides and not constricted at tip, the postocular lobes almost obsolete and the prosternum scarcely emarginate. The vestiture is less dense than in that species.

D. constrictus Say.—Elongate oval, rufopiceous to pitchy black, clothed with small, oval, grayish or yellowish white scales, not closely crowded on the upper surface, but very dense beneath. Beak long and slender, cylindrical, very feebly curved. Male: moderately robust, opaque, punctured throughout its whole length, more coarsely in its proximate half, scaly and indistinctly tricarinate from base to insertion of antennæ, broadly impressed before the basal

constriction. Female: shining throughout, very finely and remotely punctulate, more distinctly punctured, scaly and substriate near the base, basal tufts and constriction very distinct. Antennæ slender, inserted two-fifths (♂) from the apex, or one-third (♀) from the base, first joint of funicle nearly one half longer than the second; clava short, ovoid, basal joint glabrous, remainder densely pubescent. Head black, shining, scarcely punctured. Prothorax very little wider than long, narrowed in front and rather widely constricted behind the apical margin, rather broadly rounded on the sides, a little wider at middle than at the base; prothoracic lobes distinct; surface very densely and finely punctured, median smooth line variable in extent, but constant. Elytra about one fourth wider at the base than the prothorax and about twice as long as wide; sides nearly straight for one-half their length, thence gradually rounded to the apex, indistinctly but broadly impressed behind the humeri, the latter rounded; striæ distinct, impressed, distantly punctured; interspaces flat, about equal in width, suberect setæ short, but distinct. Prosternum moderately long in front of the coxæ, not or feebly impressed transversely with indistinct antecoxal ridges. Legs rufous, not densely scaly; tibiæ slender, posterior dilated at the apex, apical hooks distinct; tarsi slender, first joint one-half longer than wide; claws moderately long, connate in their basal third. Length 3.5—3.75 mm.; 0.14—0.15 inch.

Hab.—Kansas, New Mexico, Arizona, California.

Two specimens in my collection from Kansas differ from the above description by their larger size (4.0 mm.), more transverse prothorax and yellowish scales, characters not sufficient to be considered of specific importance. Another specimen from California in Mr. Ulke's collection has the prothorax bisinuate at base, and the second, fourth and sixth elytral interspaces widened towards the base. I retain it here until more material shall prove the constancy of these characters.

D. sordidus Lec.—Very closely related to *constrictus*, from which it differs rather by an assemblage of characters than by any constant anatomical difference. Oval, piceous, elytra, beak and legs rufous. Beak a little less slender and more coarsely punctured in the male; first joint of funicle more than one-half longer than the second. Head less shining, with scattered punctures. Prothorax distinctly wider than long, more narrowed in front, and a little more strongly rounded on the sides. Elytra less elongate, a trifle more rounded on the sides and not impressed behind the humeri. Prosternum more deeply emarginate, deeply impressed transversely. The scaly vestiture is more easily abraded, more dense on the upper surface, the scales a trifle larger. The elytral striæ without evident punctures. Length 3.4 mm.; 0.14 inch.

Hab.—New Mexico, Arizona, Texas, California.

D. humilis n. sp.—Oblong-oval, moderately convex, black, antennæ and legs rufous, scaly vestiture rather dense, consisting of uniform, moderately large, grayish white scales. Beak (male) moderate, as long as head and prothorax, of equal thickness throughout when viewed laterally, widened near the

base when viewed from above, broadly impressed before the basal constriction, densely punctured and scaly in its basal half, more remotely punctured and feebly shining beyond the antennal insertion, basal tufts very prominent, a smooth subcarinæform median line from base to apex; scrobes oblique, visible, when viewed laterally, in their anterior half only. Antennæ inserted at the middle, first joint of funicle robust, one-half longer than the second, basal joint of club subglabrous. Head polished, with a very few scattered punctures. Prothorax transverse, one-half wider than long, narrowed anteriorly, widest at the middle, regularly rounded on the sides, one-fourth wider at the base than at the apex, the latter broadly and very obviously constricted and distinctly impressed behind the anterior margin; surface not densely punctured, punctures small, especially toward the median line, the latter smooth, distinct, entire, base feebly biemarginate; scutel rather large, distinct, scaly. Elytra one-third wider at the base than the prothorax, suboval, very feebly rounded on the sides, humeri not prominent, rounded, striæ quite obvious, punctures distinct, approximate, interstitial setæ whitish, suberect and not very evident. Prosternum taansversely impressed, broadly emarginate, postocular lobes feeble. Thighs very feebly clavate, tibiæ moderate, a little widened at the apex, terminal armature distinct on all; tarsi as usual, claws connate in their basal third. Length 2.75 mm.; 0.11 inch.

Hab.—Kansas.

Three males, Mr. Ulke's and my own collection. Distinguished from its nearest allies, *constrictus* and *sordidus*, by its rather small size, less rounded sides and deep apical constriction of the prothorax.

D. fulvus Lec.—Elongate, elliptic, black, elytra and legs ferruginous, densely clothed with elongate oval scales, which are bright fulvous on the upper, paler on the under surface of the body. Beak almost straight, especially in the female, basal constriction deep, tufts prominent. Male: punctured throughout, scaly and striate from the base to the insertion of the antennæ. Female: shining, punctured and sparsely clothed with filiform scales in basal third, finely and remotely punctulate beyond. Antennæ inserted a little before the middle (♂), or nearly two-fifths from the base (♀), rather stout, first joint of funicle stout, longer than the second, basal joint of club shining, remainder densely pubescent. Head punctured, front scaly. Prothorax about as long as wide, narrowed in front, feebly constricted at the apex, moderately rounded on the sides; surface evenly, densely, and rather finely punctulate, median smooth line and prothoracic lobes obsolete, scales arranged transversely. Elytra fully one-third wider than the prothorax at its base and fully twice as long as wide, sides nearly straight for one-half, thence gradually rounded to the apex, humeri rather prominent; striæ impressed, rather coarsely and not remotely punctured. Prosternum rather long in front of coxæ, not deeply emarginate. Legs moderate, tibiæ widened toward the apex, armature very evident; tarsi very slender, claws connate for fully one-half their length, the posterior tibiæ are slightly curved in the female. Length 3.25—3.5 mm.; 0.13—0.14 inch.

Hab.—California, Kansas, Utah (Missouri, Nebraska, N. Mexico, Casey).

Easily recognized by its bright fulvous color; resembles, and is closely related to *flavicans*, which it resembles in form, and from which it is distinguished by the second joint of funicle being distinctly longer than the third, and the bright fulvous scales.

S. flavicans Lec.—Oblong-suboval, dark piceous, clothed above with rather small, ochreous, elongate oval scales, a little larger and placed nearly transversely on the prothorax, not at all crowded, without a trace of variation in color on the elytra, scales on the underside very small, pale yellowish. Beak (male) rather robust, slightly curved, of nearly equal thickness, scarcely longer than the prothorax, subopaque, thinly scaly, except at the base, where the scales condense to form two prominent basal tufts; scrobes oblique. Antennæ stout, inserted fully two-fifths from the apex, second joint of funicle not longer than the third, outer joints wider, club stout, basal joint subglabrous. Front scaly, punctate. Prothorax a trifle wider than long, distinctly narrowed in front, very broadly rounded on the sides and scarcely constricted at the apex, very little wider at middle than at the base, rather densely and apparently coarsely punctured, punctures nearly entirely concealed by the scales; scutel rounded, glabrous. Elytra scarcely one-third wider at the base than the prothorax, nearly twice as long than wide, side subparallel for one-half their length, then broadly rounded to tip, striæ rather coarse, not at all concealed by the scales, punctures fine, remote and rather indistinct, interstitial setæ short, subereet, distinct; prosternum rather deeply emarginate, postocular lobes broad, not prominent. Thighs strongly clavate, tibiæ slender, widened at apex, especially the posterior ones, tarsi slender, third joint broadly and deeply bilobed; claws smaller than in the preceding species. Length 2.75 mm.; 0.11 inch.

Hab.—Arizona, Texas (LeConte).

A single male specimen in Dr. Horn's collection is before me; closely related to *fulvus*. Casey's description does not apply to the species under consideration, and is at variance in every important particular with the description given by Dr. LeConte.

SMICRONYX Sch.

As here defined, the genus presents the following characters: Beak variable, antennal club small, sometimes moderate in size, first joint forming less than one-half of its mass. Head rounded, moderately large, front squamous in most of the species, separated from the beak by a well-defined constriction. Eyes transversely oval, narrowly separated underneath. Prothorax variable, narrowed anteriorly and constricted at the apex in most of the species, postocular lobes distinct in most, obsolete in a few of the species; scutel distinct, generally quite small. All the tibiæ unguiculate at the apex. Tarsal claws very small or moderate in size, connate to a variable extent.

Represented by a large number of species, differing greatly in appearance as well as structurally. The type of the genus is *S. reichei*

Sch. of Europe, a small insect, resembling in size *S. seriatus* Lec.; beak and antennæ stout, the second joint of funicle not longer than the third, prosternum canaliculate, claws very small, connate nearly to the apex. All the European species contained in my collection agree in these characters, all the tibiæ unguiculate at the apex and the very small tarsal claws connate beyond the middle.

In view of the striking differences in the structure of the claws, I have divided our species into two subgenera, as follows:

Tarsal claws very small, generally stout, not divergent (except *tesselatus*, *ovipennis* and *impressirostris*), connate at least to the middle. Subgenus SMICRONYX.

Tarsal claws moderate, except *perfidus*, generally slender and evidently, though not strongly diverging, connate in their basal third only, rarely to the middle ..... Subgenus PSEUDROMICRONYX.

Subgenus SMICRONYX.

The species comprising this subgenus are, on the whole, a little more sombre colored than those of the next. The beak is stouter, especially in the males; tarsi stouter, fourth joint never twice the length of the third. According to structural difference I have subdivided the species into the following groups:

Form robust, strongly convex, elytra more or less distinctly ventricose, rounded on the sides, widest about the middle, at most one-half longer than wide. ovipennis Group.

Form more elongate, less convex, elytra elongate, straight on the sides, and more than one-half longer than wide.

Prosternum short in front of the coxæ, generally transversely impressed, without antecoxal ridges..... profusus Group.

Prosternum of moderate length in front of the coxæ, sulcate, sulcus limited by antecoxal ridges..... cinereus Group.

ovipennis Group.

The species comprising this group are strongly convex insects with the elytra more or less ventricose or oval, widest about the middle. The beak is longer than head and prothorax, generally robust in the males, slender in the females. Antennæ inserted two-fifths from the apex in the males, at the middle in the females. The tarsi are stout (except *cinerascens*), third joint bilobed, fourth short, scarcely longer than the former; claws very small.

In form and in the insertion of the antennæ, the species approach closely to *Pachyphanes;* they are very closely allied, and rather difficult to differentiate, and were heretofore known in collections

under the name *ovipennis* Lec. The following analytical table, supplemented by the specific descriptions, will enable the student to identify them:

Larger species, 2.5—3.25 mm., claws closely approximate, connate beyond the middle.

Prothorax much wider than long and without a smooth dorsal line.

Scales brown, conspicuously mottled with white, interstitial setæ inconspicuous ..... **squalidus.**

Scales blackish, intermixed with a few pale, scattered scales; interstitial setæ long, white and quite conspicuous..... **setulosus.**

Prothorax not or very little wider than long.

Prothorax larger, with an almost entire, smooth median line, scales uniform, grayish white, not mottled ..... **cinerascens**

Prothorax smaller, smooth median line obsolete, scales brown, inconspicuously mottled with paler scales..... **morio.**

Smaller species, 2.0 2.5 mm.; claws moderately diverging, not connate beyond the middle.

Prothorax wider than long, beak not impressed before the basal constriction.

Scales variable in size, brown, mottled with white; interstitial setæ scarcely visible ..... **tesselatus.**

Scales large, unicolorous, grayish white; interstitial setæ quite conspicuous. **ovipennis.**

Prothorax scarcely wider than long, beak broadly impressed before the basal constriction, prosternum broadly sulcate..... **impressirostris.**

S. squalidus Casey.—Ovate, robust, convex, pitchy black, antennæ and legs rufopiceous, densely clothed with oval scales, small, grayish or ochreous on the underside, brown and conspicuously mottled with larger white scales above. Beak in the male rather robust, curved, punctured and scaly throughout, subcarinate and finely striate, in the female slender, much longer than head and prothorax and regularly curved, shining and sparsely scaly; basal tufts feeble, constriction superficial. Antennæ slender, inserted two-fifths from the apex (♂), or at the middle (♀), first and second joints of funicle elongate, the latter a little longer than the former and much longer than the third joint, which is short; following joints widened towards the club, which is not very densely pubescent. Head punctured, front scaly, vertex shining. Prothorax distinctly wider than long, two-thirds as wide at the apex than at the base, narrowed anteriorly and distinctly constricted at the apex, regularly and rather strongly rounded on the sides: surface densely and coarsely punctured, punctures not entirely concealed by the scales, a median vitta and two discal spots each side white. Scutel very small. Elytra one-third wider at the base than the prothorax, oval, one-fourth longer than wide, humeri prominent, rounded, striæ not deeply impressed, punctures remote and not very distinct; interstices flat, setæ very small, scarcely visible; humeral and a short basal line on the third interspace, subquadrate or irregular spots on the disc, white. Prosternum deeply emarginate, transversely impressed, postocular lobes prominent. Legs slender, tibiæ feebly incrassate toward the apex, anterior and middle setulose within, terminal hooks distinct; claws connate beyond the middle. Length 3.0 mm.; 0.12 inch. Plate vii, fig. 8.

Hab.—Pennsylvania, Ohio (D. C., Ind., Casey).

In appearance, form and coloration, this species agrees fully with *tesselatus*, from which it differs by its greater size, longer second funicular joint, and the approximate claws; connate very evidently beyond the middle. From *morio*, to which it bears the closest resemblance, it differs by its distinctly curved beak, especially marked in the female, and its distinctly broader prothorax.

S. setulosus n. sp.—Very similar to the preceding, with which it agrees in form and appearance, but is smaller. It differs as follows: the vestiture consists of pitchy black, closely matted and adherent scales on the elytra, with a few scattered whitish spots and scales, underside not very densely clothed with very small, dirty grayish scales; the interstitial setæ are long, white, hair-like and quite conspicuous. The beak in the male is rather more slender and shining, less densely scaly; the thoracic punctures rather more coarse, subconfluent and arranged in somewhat irregular, concentric rows, their interspaces giving a resemblance to rugæ; there is scarcely an indication of a short, basal median vittæ and no lateral spots; the elytral punctures are large and very evident. Length 2.5—2.75 mm.; 0.10—0.11 inch.

Hab.—Texas, Illinois. Dr. Horn's and my own collection.

One specimen has the scales not closely matted, and is more distinctly mottled like the preceding, but the elytral setæ and punctures are quite conspicuous. Another specimen in Dr. Horn's collection from Illinois I refer, with some hesitancy, to the present species, it is a male and has the beak more evidently tapered to the apex and the elytral setæ almost concealed by the incrusted scales.

S. cinerascens n. sp.—Subovate, strongly convex, pitchy black, antennæ and legs rufopiceous, underside densely covered with large, broadly oval, overlapping, yellowish white scales, which, especially on the thoracic side-pieces are darker in the centre and on the abdomen are intermixed with very fine, erect, whitish hairs, on the upper surface smaller, variable in size, gray or grayish brown, scarcely mottled, a little more dense on the sides of the elytra. Beak a little longer (♀) than head and prothorax, feebly curved, somewhat shining, carinate from base to one-fourth from the apex, strongly punctured and striate each side, nearly glabrous in its apical fifth; basal tufts obsolete, constriction not deep. Antennæ not very slender, inserted at the middle (♀); first joint of funicle stout, second decidedly shorter, third transverse, outer joints widened; club rather densely pubescent. Head finely alutaceous, feebly shining, front punctured and sparsely scaly. Prothorax very convex, wider than long, apex about two-thirds as wide as the base; broadly but not strongly constricted at the apex, rather strongly rounded on the sides; surface densely and evenly, though not coarsely punctured, punctures distinct, not confluent and somewhat umbilicate, an almost entire, smooth median line, scaly on the sides; scutel very small, glabrous. Elytra less than one-third wider at the base than the prothorax, oval, almost one-half longer than wide at base, sides rounded, widest at the middle, humeri prominent, rounded; distinctly striato-punctate;

interstitial setæ very fine, short, hair-like, scales more condensed on the basal third of the sutural, and a short line on the third and seventh (humeral) interspaces. Prosternum deeply emarginate, postocular lobes prominent. Legs slender, tibiæ nearly parallel in their apical half, setulose within, apical hooks distinct; tarsi piceous, slender, fourth joint longer than the third and projecting as much as the length of the latter; claws connate beyond the middle. Length 3.0 mm.; 0.12 inch.

Hab.—Texas.

A single ♀ specimen in Dr. Horn's collection is before me. Easily recognized by the evenly punctured thorax, almost entire smooth dorsal line, the nearly uniformly colored, gray scales and the slender tarsi.

S. morio n. sp.—Ovate, convex, pitchy black, legs rufopiceous; densely clothed with dark brown, or blackish scales, inconspicuously mottled with pale brown or white on the upper surface, those of the underside grayish white. Beak longer than head and prothorax, feebly curved, slightly tapering from the base, rather coarsely punctured and sparcely clothed with filiform scales from base to the insertion of the antennæ, finely punctulate and shining in its apical half, feebly subcarinate, the carina finely canaliculate on a level with the insertion of the antennæ; latter slender, first and second joints of funicle elongate, former conspicuously longer than the latter, which is fully one-half longer than the next, third joint not transverse, about as long as wide, outer joints of funicle but little wider, club not very densely pubescent. Head finely alutaceous, front punctured with a few scattered scales. Prothorax somewhat shining, scarcely wider than long, broadly but not strongly constricted at the apex, regularly rounded on the sides, about three-fourths as wide at the apex than at the base; surface rather densely, but not coarsely punctured; punctures superficial, sparsely scaly; scutel small, glabrous. Elytra two-fifths wider at the base than the prothorax, oval, convex, widest about the middle, sides rounded, striæ distinct, punctures conspicuous, remote; interstitial setæ very fine, short, hair-like; a pale line on the base of the third and seventh interspaces, the pale markings on the disc are generally arranged in oblique or subtransverse lines. Prosternum deeply emarginate, postocular lobes prominent. Legs slender, tibiæ scarcely widened to the apex, apical hooks small, but distinct; tarsi stout, fourth joint projecting less than the length of third; claws small, connate beyond the middle. Length 2.75—3.0 mm.; 0.11—0.12 inch.

Hab.—Pennsylvania, Dacota.

Might be confounded with either of the three preceding species; it differs from *squalidus* by the form of the beak and thorax and the dark color of its surface; from *setulosus* in form of prothorax and the scarcely visible elytral setæ; from *cineraseens*, by the different coloration of the scales and the more coarsely and less evenly punctured prothorax, with rarely a trace of a smooth median line; from the three following species of this group it differs by its larger size and the closely approximate tarsal claws connate beyond the middle.

S. tesselatus n. sp.—Ovate, robust, strongly convex, black; legs and antennæ rufopiceous, underside densely covered with large, oval, whitish or yellowish white scales, those of the upper surface smaller, brownish, conspicuously mottled with spots and lines, consisting of large white scales. Beak very feebly curved, densely punctured and scaly from base to beyond the middle, indistinctly subcarinate and striate, a little longer than head and prothorax in the male, much longer and somewhat shining toward the apex in the female, basal tufts and constriction feeble. Antennæ not very slender, first joint of funicle rather robust, second very little longer than the third, outer joints moderately wider, club densely pubescent. Head feebly shining, alutaceous, front coarsely punctured, scaly. Prothorax distinctly wider than long, narrowed anteriorly, sides strongly and somewhat suddenly rounded in front, convergent and nearly straight behind the middle, apex broadly constricted, densely and rather coarsely, but not deeply punctured; a median entire vitta, an interrupted one each side of the disc, and a line on the lateral margin, consisting of white scales; scutel extremely small, almost invisible. Elytra oval, two-fifths wider at base than the prothorax, widest at the middle, sides rounded, humeri rounded, prominent; striæ not deep, rather wide, coarsely and remotely punctured, interstitial setæ fine, distinct; humeral, basal line on the third interspace and spots and lines on the disc of large white scales, the scales of the sutural interspace are of a paler brown than those of the disc. Prosternum broadly, but not deeply sulcate, antecoxal ridges prominent in front; postocular lobes not very prominent. Thighs rather slender; tibiæ moderately robust and rather short, widened to the tip, anterior and middle setulose within; terminal hooks, except on the hind pair, quite distinct; tarsi stout, fourth joint scarcely longer than the third, projecting about one-half the length of the latter; claws small, connate scarcely one-half their length, divergent. Length 2.25—2.5 mm.; 0.09—0.10 inch.

Hab.—Texas, District of Columbia.

Scarcely to be distinguished from *squalidus*, from which it differs by the less elongate first joint of the funicle, the second joint but little longer than the third, the claws connate scarcely one-half their length, and by its smaller size. Confounded in collections with *ovipennis* Lec.

S. ovipennis Lec.—Subovate, convex, pitchy black, antennæ and legs rufopiceous; rather densely clothed with ashy gray scales, smaller on the underside, larger and broadly oval above, without mottlings. Beak robust, longer than head and prothorax, tricarinate, median carina finely canaliculate, intervening sulci coarsely punctured, squamose from base to about the middle, basal tufts not well marked, constriction rather deep. Antennæ with the second joint of funicle distinctly longer than the third and but little shorter than the first, which is moderately stout. Head as in *tesselatus*. Prothorax wider than long, narrowed in front, one-fourth wider at base than at the apex, the latter broadly, but not strongly constricted; sides broadly and not very strongly rounded; surface densely punctured, punctures rather coarse and close set, more or less concealed by the scales; scutel glabrous, distinct. Elytra subovate, about one-third wider at base than the prothorax; humeri rather prominent, sides broadly rounded from base to apex, striæ rather coarse, deep; punctures large, remote, interstitial

setæ white, long, conspicuous. Prosternum rather short in front of the coxæ, transversely impressed, prothoracic lobes moderately prominent. Legs and tarsi as in the preceding. Length 2.25 mm.; 0.10 inch.

Hab.—Montana, Texas.

Two specimens, ♂ and ♀, in Dr. Horn's collection. Very closely related to the preceding, from which it differs by its nearly uniform ashey gray scales, the greater length of the second joint of the funicle, the less broadly oval elytra, and the shorter and transversely impressed prosternum; the elytral setæ are also longer and more conspicuous.

S. impressirostris n. sp.—Subovate, moderately convex, black, antennæ and legs rufopiceous, densely clothed on the underside with large, white or yellowish white scales, scales on the upper surface smaller, brownish, with irregularly scattered paler scales intermixed. Beak longer, than head and prothorax, feebly curved; very robust in the male, slender in the female; indistinctly striate and very feebly subcarinate, punctured throughout and scaly from base to beyond the middle, in the male; less densely punctured, somewhat shining and sparsely scaly in the female; basal tufts feeble, constriction marked, before the latter there is a broad, distinct impression in the male; scrobes oblique. Head finely rugulose, front punctate, scaly. Prothorax scarcely wider than long, narrowed in front, not constricted at the apex, widest at the middle, sides rounded, feebly convergent and nearly straight behind the middle; surface not very densely and rather finely punctured, not closely scaly, an interrupted and not very evident vitta each side of disc white; scutel distinct, glabrous. Elytra oval, less than one-third wider at the base than the prothorax, sides regularly rounded, somewhat compressed before the apex, striæ rather fine, distinctly and remotely punctured, interstitial setæ moderately long, distinct; indistinctly mottled with pale, grayish brown scales. Prosternum rather long in front of coxæ, broadly sulcate. Legs as in the preceding two species, tarsi not very stout, fourth joint projecting nearly the length of the third; claws connate one-half their length. Length 2.5 mm.; 0.10 inch. Plate vii, fig. 10.

Hab.—S. Illinois.

A male and female specimen in my collection. Differs from the preceding species by the thorax scarcely wider than long, and the broad transverse impression at the base of the beak, which is more feeble in the female; it differs further from *tesselatus* by the elongate second funicular joint and the nearly unicolorous vestiture.

profusus Group.

This group contains some of the largest, as well as smallest, species of the genus under consideration. They are generally elongate in form with humeri prominent and the sides of the elytra parallel, straight or nearly so. The beak in nearly all of them is rather stout, especially in the males, the second joint of the funicle never

long and slender, and in most of the species not longer than the third. Prosternum either deeply or more broadly emarginate, generally transversely impressed, never sulcate, and without antecoxal ridges. The fourth tarsal joint is slender and projects fully the length of the third joint; claws approximate, very small and connate one-half or more their length (*mucidus* has the claws rather moderate and slightly divergent).

The species are to be distinguished as follows:

Larger species, 3.0 mm. or more, postocular lobes well developed, prominent.
Tibial spurs prominent, conspicuous, robust species. Plate vii, fig. 9.
Pitchy brown, prothorax not deeply constricted at the apex, third tarsal joint broadly bilobed ..... **profusus.**
Dirty gray, hirsute, prothorax deeply constricted behind the anterior margin, third tarsal joint scarcely bilobed ..... **intricatus.**
Tibial spurs small, inconspicuous, species more elongate, parallel on the sides.
Scales gray, or yellowish gray, unicolorous, elytra declivous at the base. **mucidus.**
Elytra with a broad lateral vitta or stripe.
Prothorax rounded on the sides, vitta fulvous. Plate vii, fig. 12. **perplexus.**
Prothorax straight on the sides behind the middle, vitta predominantly whitish ..... **tardus.**
Smaller species, 2.75 mm. or less, postocular lobes obsolete, or very feeble, tibial hooks prominent
Not very densely scaly, scales not crowded or overlapping above, oval or elongate, prothorax narrowed toward the base.
Larger, legs dark piceous, beak feebly curved. ..... **picipes.**
Very small, legs reddish.
Prothorax shining, neither deeply nor closely punctured, strongly rounded on the sides. ..... **rhodopus.**
Prothorax without lustre, densely punctured, broadly rounded on the sides ..... **pusillus.**
Very densely clothed with large, broadly oval, imbricate scales, prothorax not evidently narrowed posteriorly.
Larger, 2.75 mm., beak nearly straight, scales with pearly reflection. **resplendens.**
Smaller, 1.75 mm., beak curved, scales entirely without lustre..... **pusio.**

S. profusus Cas.—Oblong-oval, pitchy black, densely scaly, scales broadly oval, moderately large, pitchy brown, indistinctly mottled with paler scales above, underside and legs paler. Beak feebly curved, slightly tapering from the base, rather slender, about as long as head and prothorax in the male, a little longer in the female, densely punctured and scaly from base to beyond the middle (♂), or less densely punctured and more shining towards the apex (♀); basal tufts and constriction well marked. Head finely rugulose, front punctured and scaly. Antennæ slender, second joint of funicle not slender, about one-half longer than the third, basal joint of club subglabrous. Prothorax wider than long, about one-half as wide at the apex than at the base, latter feebly bisinuate,

rather suddenly narrowed in front, not broadly but distinctly constricted at the apex, sides straight and nearly parallel behind the middle; surface evenly and not densely punctured, punctures rather small, a faint median basal vitta of paler scales; scutel distinct, scaly. Elytra scarcely one-third wider at the base than the prothorax, sides parallel for three-fifths their length, thence gradually narrowed to the apex, striæ rather fine, distinctly and remotely punctured, interspaces flat, setæ distinct; indistinctly mottled with pale brown or whitish scales, the latter more conspicuous on the humeri and a short basal line on the third interspace. Prosternum rather deeply emarginate. Thighs rather strongly clavate, tibiæ not very slender, nearly parallel, strongly hooked at the apex, setulose within; tarsi rather stout, fourth joint projecting beyond the third about the length of the latter; claws connate beyond the middle. Length 3.5—4.5 mm.; 0.15—0.20 inch. Plate vii, figs. 3, 3*a*, 9, 9*a* and 9*b*.

Hab.—Arizona.

The above description does not tally in all particulars with that given by Casey; the second funicular joint is about one-half longer than the third, the elytra at most one-third wider at base than the prothorax and the claws distinctly connate beyond the middle.

S. intricatus Casey.—Oblong, piceous, very densely scaly, scales large, broadly oval, yellowish brown or gray on the legs and underside of the body, intermixed with numerous, erect, squamiform, white setæ, dark gray, intermixed with blackish and yellowish brown above. Beak robust, curved, longer than head and prothorax, coarsely and densely punctured, especially in the male, striate; densely scaly from the base to the insertion of the antennæ, scales intermixed with stout, suberect bristles, somewhat flattened above, especially toward the base, basal tufts prominent, constriction very deep; scrobes scarcely oblique. Antennæ not slender, inserted a little before the middle (♀), or less than two-fifths from the apex (♂), first joint of funicle rather stout, second not elongate, scarcely longer than the third, outer joints transverse. Head finely rugulose, front punctulate, scaly. Prothorax distinctly wider than long, rather suddenly narrowed in front and deeply constricted behind the anterior margin, sides behind the anterior third straight, parallel, or very feebly rounded, punctures small, not dense, concealed by the scaly vestiture, latter intermixed with coarse, suberect, dark brown setæ, a line on the lateral margin and an indistinct median vitta of white scales; scutel scaly. Elytra two-fifths wider at base than the prothorax, sides nearly straight for three-fifths their length, then gradually rounded to the apex; striæ well impressed, distinctly punctured, punctures concealed by the scales; interstitial setæ brownish, conspicuous; interspaces slightly convex, surface mottled, humeri paler; prosternum broadly emarginate, transversely impressed, postocular lobes prominent; femora clavate, tibiæ moderately stout, terminal hooks distinct; tarsi not stout, third joint not broadly bilobed, but little wider than the preceding joint, fourth long and slender, projecting more than the length of the third; claws connate for one-half their length. Length 3.0—3.2 mm.; 0.12—0.13 inch.

Hab.—Texas, Arizona.

Two males and one female in my collection. Casey's description agrees with my specimens, except the statement "Elytra at base fully

one-half wider than the prothorax," which is not the case in any of the specimens before me. It is a distinct species, not very closely related to any other known to me and easily distinguished by its robust form, deep constriction of the thorax, general hirsute appearance and narrow third tarsal joint. One of my specimens has a sutural line and a vitta on each elytron white.

S. mucidus n. sp.—Elongate oblong, black, legs rufopiceous; densely clothed above and beneath with moderately large, gray, oval scales. Beak moderately stout, curved, about as long as head and prothorax in the male, a little longer in the female, tapering from base to apex; in the male rather densely punctured, striate and scaly from base to the insertion of the antennæ, feebly shining and remotely punctured beyond; in the female densely, but more finely punctured, scarcely striate with an indistinct, median, elevated line from base to the antennal insertion, shining and scarcely punctured beyond; basal tufts prominent, constriction profound; scrobes scarcely oblique. Head finely rugulose, front punctured, scaly; antennæ rather slender, second joint of funicle one-half longer than the third; outer joints transverse, club wider, densely pubescent. Prothorax nearly one-half wider than long, about one-half as wide at the apex than at the middle, rather strongly rounded on the sides in front, broadly but feebly constricted at the apex, nearly straight and slightly convergent on the sides behind the middle; surface closely and somewhat coarsely punctured, scales intermixed with large, suberect, squamiform setæ; scutel very small, scaly. Elytra oblong, two-fifths and rather suddenly wider at the base than the prothorax, humeri prominent, declivous at the base, sides inconspicuously narrowed behind the latter, sides nearly straight for three-fifths their length, then broadly rounded to the apex, striæ fine, not deeply impressed, punctures remote, very small, nearly invisible, interstitial setæ quite distinct, brown, hair-like; humeral prominence and a short basal line on the third interspace white, prosternum rather deeply emarginate, transversely impressed, postocular lobes prominent; femora slender, scarcely clavate, tibiæ parallel from about the middle, terminal hooks small; tarsi slender, third joint broadly bilobed, fourth long, projecting about the length of the preceding joint; claws small, slightly divergent, connate beyond the middle. Length 3.25—3.5 mm.; 0.13—0.14 inch.

Hab.—Washington Territory, New Mexico.

Two specimens, male and female are before me. Readily recognized by its uniform gray color and white line on the base of the third and seventh interspace, the femora are less clavate than in any of the neighboring species. From *intricatus* it differs by its elongate and nearly parallel form, the broadly bilobed third tarsal joint and less hirsute appearance. A specimen in my collection from California I refer with some hesitation here; it has the prothorax nearly as long as wide and more strongly rounded on the sides.

S. perplexus n. sp.—Elongate oblong, pitchy black, densely clothed above and beneath with small, broadly oval or rounded scales, blackish above, mottled with white spots on the elytral disc; a broad, irregular stripe on each elytron of

fulvous scales, scales on the underside and legs dirty gray. Beak, in the male, stout, distinctly tapering from the base to the apex, curved, about as long as head and prothorax, densely punctured, feebly shining toward the apex, basal tufts prominent, constriction deep; scrobes subparallel. Head finely rugulose, front densely covered with pale yellow scales. Prothorax a trifle wider than long, about two-thirds as wide at the apex than at the base, sides broadly rounded, distinctly constricted at the apex, slightly narrowed toward the base; surface not very closely punctured, punctures moderately large, scarcely concealed by the scales; scutel small, squamose. Elytra about one-third wider at the base than the prothorax, elongate, sides straight, parallel for fully one-half their length, thence rounded to the apex; striæ distinct, punctures small, irregular, remote and not very obvious, interstitial setæ very sparse, extremely short and scarcely visible; the lateral vitta extends almost the whole length of the elytra, from the fourth to the sixth interspaces inclusive; sutural space mottled with small, subquadrate spots of white scales. Prosternum broadly emarginate, transversely impressed; postocular lobes feebly developed. Thighs clavate, tibiæ moderately stout, apical spurs small; tarsi rather slender, third joint bilobed, fourth long and slender; claws very small, connate beyond the middle. Length 3.0 mm.; 0.12 inch. Plate vii, fig. 12.

Hab.—California. Dr. Horn's and Mr. Ulke's coll.

Two males. A distinct form. The only species with which it could be confounded is *cognatus* and *spretus* of the next group, from both of which it differs by the absence of antecoxal ridges; it is smaller than *cognatus*, with the prothorax scarcely wider than long, larger than *spretus*, with different arrangement of the scales on the elytron; from the next species it differs by the colored elytral vitta and the prothorax narrowed toward the base. Dr. Horn's specimen has the lateral elytral vitta whitish, less defined and the prothorax a little less rounded.

S. tardus n. sp.—Elongate-oblong, blackish, legs paler. Vestiture of the upper surface consists of rather small, very dense dark brown, oval scales, a broad vitta on each elytron, consisting of whitish scales, moddled with fulvous, occupying the fourth, fifth and sixth interspaces, scales on the under surface not dense, very small, grayish white. Beak robust, moderately curved, tapering from the base, opaque, feebly shining near the apex, densely punctured, subcarinate, feebly striolate each side, sparsely scaly, except near the base, where the scales form two yellowish, very prominent tufts, about as long as head and prothorax, basal constrictions deep. Head finely alutaceous, front punctured and rather densely scaly; antennæ not very slender, first joint of funicle robust, second scarcely longer than the third, outer joints wider, nearly as wide as the club, basal joint of latter feebly pubescent. Prothorax a little wider than long, not strongly narrowed in front, apex widely and distinctly constricted, sides straight from before the middle to the base, surface not closely punctured, small, a little larger towards the sides, each one bearing a filiform scale, an inconspicuous median vitta of pale scales. Scutel distinct, small, scaly. Elytra fully one-third, and somewhat suddenly wider at the base than the prothorax, humeri

prominent, sides straight for three-fifths their length, thence gradually rounded to the apex; striæ fine, punctures very small, remote; interstitial setæ very small, procumbent and scarcely visible. Prosternum deeply emarginate, postocular lobes prominent. Thighs moderately clavate, tibiæ slender, feebly armed at the apex; tarsi moderate, third joint not very broadly bilobed, fourth slender, projecting; the length of the third; claws very small, connate beyond their middle. Length 2.75 mm.; 0.11 inch.

Hab.—California.

A single male specimen in Dr. Horn's collection. Distinguished from *perplexus* by its broad, pale elytral vitta and the less closely and finely punctured prothorax. This may possibly be *pleuralis* Casey, but the second joint of the funicle is not perceptibly longer than the third and the prothorax not coarsely and densely punctured.

S. picipes n. sp.—Elongate-oval, pitchy black, scaly vestiture moderately dense, scales not crowded or imbricate, rather small oval, pale ochreous on the underside and especially dense on the thoracic side pieces, brownish, interspersed with gray above. Beak in the male moderately stout, shorter than head and prothorax, feebly curved, punctured and thinly clothed with filiform scales in its basal half, feebly shining beyond, basal tufts not prominent, in the female nearly straight, cylindrical, as long as head and prothorax, shining throughout, thinly pubescent near the base, tufts obsolete. Antennæ (♂ and ♀) inserted about the middle, first joint of funicle robust, second one-half longer than the third, outer joints wider. Head feebly shining, finely punctulate. Prothorax scarcely wider than long, narrowed anteriorly, apex not constricted, sides rounded, convergent posteriorly, densely and subconfluently punctured, punctures small, less crowded along the anterior margin, scales intermixed with short, brownish erect setæ, paler on the lateral margin. Scutel very small. Elytra two-fifths wider at the base than the prothorax, sides nearly straight, parallel for two-fifths their length, humeri prominent, striæ impressed, remotely punctured, scarcely concealed by the scales; interstitial setæ very small, scarcely visible. Prosternum broadly emarginate, postocular lobes feeble. Thighs not strongly clavate, tibiæ moderately stout, subparallel, widened at the apex, apical hook of anterior pair quite prominent; tarsi slender, first and second joints not longer than wide, third joint very deeply and broadly bilobed, fourth projecting scarcely the length of the third; claws connate for scarcely one-half their length. Length 2.5 mm.; 0.10 inch.

Hab.—Virginia.

A male and female specimen in Mr. Ulke's collection. Resembles the next two species, but is considerably larger, and the legs are not red.

S. rhodopus n. sp.—Elongate-oval, black, somewhat shining, legs rufous; not densely clothed with large, oval, whitish scales. Beak robust, not quite as long as the prothorax (♂), slightly tapering, and nearly straight, densely but not coarsely punctured, finely striolate, rufous at tip, scaly toward the base, feebly subcarinate, basal tufts obsolete, constriction very slight; scrobes scarcely oblique; antennæ not slender, inserted two-fifths (♂) from the apex, first joint

of funicle very robust, second not elongate, as long as the third, outer joints wider, merging into the club, latter rather thinly pubescent, basal joint glabrous. Head densely punctured. Prothorax wider than long, strongly narrowed anteriorly, broadly and feebly constricted at the apex, strongly rounded on the sides, not closely punctured, punctures large, somewhat transversely oval, interspaces shining, a smooth median line confined to the disc. Scutel relatively large, not scaly. Elytra ovate, less than one-third wider at the base than the prothorax, nearly twice as long as wide, sides feebly rounded; humeri prominent, glabrous; coarsely striate, punctures approximate, moderately large; interspaces feebly convex, rugulose, punctulate, shining between the scales, setæ obsolete. Prosternum very short in front of coxæ, transversely impressed, postocular lobes obsolete. Legs stout, thighs clavate, tibiæ widened to the apex, terminal hooks distinct, tarsi not very slender, third joint broadly and deeply bilobed, fourth projecting less than the length of third; claws connate for about two-thirds their length. Length 1.9 mm.; 0.08 inch.

Hab.—Texas. One ♂ specimen in Mr. Ulke's collection.

A very isolated form. The above specimen is abraded; it may readily be recognized by its very small size, shining surface, bright rufous legs, absence of postocular lobes and densely punctured head. This may prove to be *perpusillus* Casey, the second joint of the funicle, however, is not longer than the third.

S. pusillus n. sp.—Elongate-oblong, black, legs rufo-piceous, not very densely clothed with elongate-oval, pale ochreous or gray scales. Beak robust, cylindrical, not at all tapering, shorter than head and prothorax (♂); densely punctured throughout, except at the apex, striolate, densely scaly from base to the insertion of the antennæ, basal tufts small, incision superficial; scrobes scarcely oblique; a little longer, more slender and opaque in the female. Antennæ not very slender, first joint of funicle stout, second not elongate, one-half longer than the third, outer joints widened, club rather large, not densely pubescent, basal joint subglabrous. Head opaque, rugulose, with a few scattered punctures and scales. Prothorax scarcely wider than long, feebly narrowed in front, scarcely constricted at the apex, broadly rounded on the sides, very slightly narrowed toward the base; surface, where denuded of scales, opaque, densely punctato-granulate, granules very fine. Scutel very small, glabrous. Elytra scarcely more than one-fourth wider at the base than the prothorax, elongate-ovate, humeri prominent, sides nearly straight and parallel for one-half, then gradually rounded to the apex; striæ fine, feebly impressed, remotely punctured, interspaces, when denuded, transversely rugose; interstitial setæ very small, white, hair-like. Prosternum as in the preceding species, postocular lobes feeble. Thighs rather strongly clavate; tibiæ widened at tip, anterior emarginate internally above the apex; terminal hooks quite prominent; tarsi piceous, third joint broadly bilobed, fourth projecting the length of the preceding joint; claws connate two-thirds their length. Length 2.0 mm.; 0.08 inch.

Hab.—California (St. Bernardino), Arizona (?).

Two males and one female, Dr. Horn's and my own collection. The Arizona specimen differs somewhat from the others, which have served as the types for the above description, by the legs being pi-

ceous, the scales on the beak arranged in rows, the apical tufts distinct, and the thoracic scales condensed on the sides and along the median line, giving thereby the appearance of a dark vitta each side of median line. Readily distinguished from the preceding species by its differently shaped and sculptured prothorax, and more elongate, oval scales; from *pusio* it differs by its elongate and not densely crowded scales. From *fraterculus*, of the next group, with which it agrees in size and appearance, it differs by the prothorax being wider than long, the absence of antecoxal ridges and the rufous legs. It agrees fairly well with the description of *connivens* Casey, but is smaller and the rostrum of the female is not very slender or shining.

S. resplendens n. sp.—Elongate, black, antennæ and legs fuscous, densely clothed with large, broadly oval, imbricate, yellowish white scales, having a pearly lustre and completely concealing all sculpture of the surface. Beak stout, very feebly curved, imperceptibly tapering from the base, about as long (♂) as the prothorax, densely scaly in its basal two-fifths, shining and finely punctured beyond, basal tufts prominent; scrobes scarcely oblique. Antennæ inserted about the middle (♂), second joint not longer than the third, outer joints scarcely wider, clava fusiform, densely pubescent. Head densely scaly. Prothorax nearly one-half wider than long, strongly and rather suddenly narrowed in front and broadly constricted at the apex, sides rounded, slightly convergent behind, the scales have a greenish reflection and are intermixed with stout, erect scales. Scutel punctiform. Elytra about one-fourth wider at the base than the prothorax, elongate, fully twice as long as wide, sides straight, parallel for two-fifths their length, then gradually rounded to the apex, striæ entirely concealed by the scales, when denuded of the latter rather well impressed, punctures approximate; interstitial setæ whitish, procumbent, interstices appearing slightly concave with the scales intact, feebly convex, where denuded. Prosternum short in front of the coxæ, broadly emarginate, postocular lobes almost obsolete; femora very strongly clavate, tibiæ rather stout, feebly biemarginate within, apical hook distinct; third tarsal joint feebly bilobed, fourth fully as long as the two preceding joints together; claws connate to the middle. Length 2.75 mm.; 0.11 inch.

Hab.—California.

A single male specimen of this remarkable species in Mr. Ulke's collection. An isolated form, the pearly lustre of its scaly vestiture is not seen in any other species known to me.

S. pusio Lec.—Elongate-oval, piceous, legs paler, very densely clothed above and beneath with large, broadly oval scales, more or less matted together on the upper surface, where they are of a dirty gray or grayish ochre color, paler and less crowded beneath, except on the sternal side pieces. Beak in the male very robust, rather strongly curved, tapering from base to apex, densely punctured, with a median elevated line and striate each side from the base to the insertion of the antennæ, densely scaly on the basal third, basal tufts not prominent, somewhat shining and remotely punctulate in its apical half; the basal constric-

tion is quite feeble; antennæ inserted at the middle, not slender, first joint of funicle robust, second one-half longer than the third, outer joints wider. Head densely scaly anteriorly. Prothorax scarcely wider than long, feebly narrowed in front, very broadly but indistinctly constricted at the apex, sides nearly straight in their basal half, not narrowed posteriorly; surface apparently rather closely and coarsely punctured, punctures concealed by the large scales, which are a trifle less dense each side of median line, thereby giving the appearance of a darker vitta. Elytra fully one-third wider at base than the prothorax, about twice as long as wide, humeri prominent, sides nearly straight for one-half their length, then gradually narrowed to the apex, striæ distinct, coarsely and rather remotely punctured, interspaces nearly flat, third a little wider than the others; setæ long, pale, depressed, scarcely elevated above the surface. Prosternum very short before the coxæ, transversely impressed and very broadly emarginate, postocular lobes obsolete. Legs rather robust, thighs strongly clavate, tibiæ stout, not long, subparallel, terminal hooks quite prominent and distinct; tarsi rather stout, third joint not broadly bilobed, but little wider than the second, fourth as long as the two preceding joints together; claws connate beyond the middle. Length 1.75 mm.; 0.07 inch.

Hab.—California. A single male specimen in Dr. Horn's collection is before me. According to Casey the beak in the female differs from that of the male only in being more slender and having the antennæ, like in the male, inserted at its middle. In the specimen before me the scales on the third interspace and a few spots posteriorly are a trifle paler.

cinereus Group.

The only distinguishing character, separating the species of this from those of the preceding group, is the presence of antecoxal ridges, more or less distinct, limiting a prosternal sulcus. The prosternum, in consequence, is generally longer in front of the coxæ and never transversely impressed.

The species may be distinguished as follows:

Scaly vestiture uniformly dense on the elytra.
  Scales not unicolorous, mottled.
    Fourth tarsal joint projecting fully the length of the third.
      Scales dark brown or blackish, inconspicuously mottled with pale spots, a stripe or vitta of ochreous or fulvous scales on each elytron.
        Larger, prothorax distinctly wider than long, very little narrowed toward the base. Plate vii, fig. 13.....**cognatus.**
        Smaller, prothorax about as long as wide, distinctly narrowed toward the base. Plate vii, fig. 14.....**spretus.**
      Elytra not vittate.
        Beak distinctly curved, third tarsal joint broadly bilobed.
          Scales blackish brown, indistinctly mottled with pale, elytra almost three times the length of the prothorax.....**cinerus.**
          Scales gray or yellowish; elytra less than three times the length of the prothorax.

Larger, scales gray, mottled with dark along the suture. Plate vii, fig. 15 ..... **scalator.**

Smaller, scales yellowish, white or black.

Mottled, yellowish, intermixed with white scales, beak stout, tapering from the base. Plate vii, fig. 19..... **lepidus.**

Mottled, a large, quadrate, subbasal spot on the elytra black, beak more slender, of equal thickness. Plate vii, fig. 16. **quadrifer.**

Beak nearly straight; third tarsal joint less broadly bilobed.

Prothorax strongly rounded on the sides and distinctly constricted at the apex, scales brown, mottled, a common sutural white spot about the middle. Plate vii, fig. 17..... **instabilis.**

Prothorax broadly rounded on the sides, scarcely constricted at the apex, scales grayish white, nubilate with dark brown. **nubilus.**

Tarsi stout, fourth joint projecting less than the length of the third. **posticus.**

Scales unicolorous, gray or pale ochreous.

Prothorax not wider than long; elytra not rounded on the sides.

Prothorax coarsely punctured; elytral setæ persistent ..... **seriatus.**

Prothorax very densely and finely punctured; setæ easily abraded. **fraterculus.**

Prothorax wider than long; elytra rounded on the sides, legs red. **languidulus.**

Scaly vestiture not uniformly dense above, condensed in spots or transverse fascia or lines, beak strongly curved.

Fourth tarsal joint projecting the length of the third; black, legs rufo-piceous.

Beak strongly curved near the base, prothorax not strongly convex, nearly straight on the sides behind the middle..... **tychioides.**

Beak regularly curved, prothorax strongly convex, strongly rounded on the sides from base to apex..... **atratus.**

Fourth tarsal joint projecting less than the length of third.

Larger, legs red; elytra more or less ferruginous.

Prothorax strongly convex, more coarsely punctured, scales yellow. **congestus.**

Prothorax less convex, punctures smaller, scales whitish.. **sculpticollis.**

Smaller, entirely black..... **apionides.**

S. cognatus n. sp.—Oblong-oval, subdepressed, dark piceous, densely clothed with closely adherent oval scales, gray on the underside, dark brown or piceous above, with a broad, irregular vitta of ochreous scales on each elytron. Beak (♂) rather stout, curved, feebly tapering from base to apex, densely scaly throughout, except the apical extremity, which is feebly shining; basal tufts forming a transverse crest of pale scales, incision deep; scrobes strongly oblique. Antennæ moderate, inserted two-fifths (♂) from the apex, second joint of funicle one-half longer than the third, outer joints wider, club densely pubescent, except the basal joint. Head opaque, front densely clothed with pale, yellowish scales. Prothorax nearly one-half longer than wide, narrowed in front, rounded on the sides before the middle, broadly and distinctly constricted at the apex, the latter scarcely three-fourths as wide as the base, feebly rounded

and very slightly narrowed on the sides toward the base; surface rather closely punctured, punctures moderate, rounded, not confluent, concealed by the scaly covering; interspaces, when denuded, shining. Scutel subtriangular, scaly. Elytra two-fifths wider at the base than the prothorax, oblong, nearly twice as long as wide; humeri prominent, rounded, sides straight for one-half their length, then broadly rounded to the apex; striæ fine, but distinct, punctures concealed by the scales, interspaces flat; setæ very short, procumbent, not at all evident, the broad stripe of pale scales tapers from the base to the apex, margin irregular, disc sprinkled with spots of pale scales. Prosternum rather long in front of the coxæ, broadly emarginate, antecoxal ridges distinct, postocular lobes feeble. Legs moderate, thighs feebly clavate, tibia gradually widened toward the apex, armature feeble; tarsi moderate, third joint not broadly bilobed, fourth projecting more than the length of the preceding joint; claws small, connate two-thirds length. Length 2.75—3.0 mm.; 0.11—0.12 inch. Plate vii, fig. 13.

Hab.—Nevada. Two males in Dr. Horn's collection.

A very distinct form. In appearance, it very much resembles *perplexus*, with which, indeed, I had considered it identical, however, the larger size, much wider prothorax, and the presence of antecoxal ridges, make the distinction easy. From *spretus*, which it resembles in the lateral vitta of the elytra, it is distinguished by its much larger size, broader form and wider prothorax.

S. spretus n. sp.—Elongate-oval, black, legs and a vitta each side of elytra rufous; scaly vestiture moderately dense, scales elongate-oval, black and dark brown mottled with white above, fulvous or yellowish brown on the sides of the elytra, on the underside smaller, rounded, grayish white. Beak rather stout, cylindrical, feebly curved, about as long as head and prothorax in the male, a trifle longer and tapering in the female; densely punctured without scarcely any lustre, substriate, rather densely scaly near the base in the male, equally densely scaly, but more slender and shining in apical half in the female; basal tufts prominent, incision deep; scrobes scarcely oblique; antennæ inserted two-fifths from the apex (♂), or a trifle before the middle (♀), rather stout, second joint of funicle a trifle longer than the third, outer joints slightly wider, club small, densely pubescent. Head finely rugulose, front punctured, densely scaly. Prothorax a trifle wider than long, a little narrower at the apex than at base, sides rounded, broadly but feebly constricted at the apex, surface not closely punctured, punctures rather small, rounded, interspaces scarcely shining, scales not crowded, deviating from the median line, directed transversely on the sides, a narrow median vitta of white scales. Scutel rather large, squamose. Elytra two-fifths wider at the base than the prothorax and about twice as long as wide, sides straight; subparallel for one-half their length, then gradually rounded to the apex; humeri prominent; striæ impressed, remotely punctured, more or less concealed by the scaly vestiture; interstices flattened, setæ brownish, procumbent, rather distinct, surface where deprived of scales shining, a broad rufous vitta commencing on the humerus and extending toward the suture behind the middle and enclosing a triangular, dark basal space, more or less sharply limited by a line of white scales and extending along the suture to the apex, the rufous vitta is clothed with fulvous scales, the whole sprinkled with white scales; an-

tecoxal ridges well marked, rather approximate; postocular lobes feeble. Legs slender, thighs feebly clavate, deeply emarginate within near the apex, almost angulate; tibiæ slender, nearly parallel, slightly widened at apex, terminal hooks small; tarsi slender, third joint not broadly bilobed, fourth projecting a little more than the length of the third; claws very small, connate fully one-half their length. Length 2.5—3.0 mm.; 0.10—0.12 inch. Plate vii, fig. 14.

Hab.—Arizona. Coll. of Dr. Horn, Mr. Ulke and my own.

Six specimens are before me. Very distinct; greatly resembles *perplexus* of the preceding group, but readily distinguished by its smaller size and antecoxal ridges. Is this *depricans* Casey? The author of that species gives California as its habitat, whereas all the specimens before me are from Arizona. The specimen in Mr. Ulke's collection differs from the typical form in having the scales on the lateral fulvous vitta white, thus corresponding in most details with the description of *depricans*. Since the above was written a typical specimen sent to Capt. Casey for determination was returned as *seriatus* Lec., from which it is abundantly distinguished by its larger size, its differently colored scaly vestiture and the scarcely visible elytral setæ.

S. cinereus Motsch. Elongate oblong, dark piceous, legs brownish, densely clothed above by closely adherent, dark piceous, oval scales sparsely mottled with white, scales on the underside brownish, intermixed with whitish setæ, those of the thoracic side pieces grayish white. Beak in the male robust, moderately curved, densely punctured, striate, scaly from base to the insertion of the antennæ in the female, a trifle more slender and shining in apical half; basal tufts distinct, constriction not very deep; scrobes scarcely oblique; antennæ inserted two-fifths from the apex (♂), or a little before the middle (♀), moderately robust, first joint of funicle elongate, stout, longer than the next two joints, second scarcely longer than the third. Head as in the preceding. Prothorax distinctly wider than long, about three-fourths as wide at apex than at base, strongly rounded on the sides in front, apex broadly and distinctly constricted, basal half of sides nearly straight and slightly convergent to the base; surface not very closely and rather coarsely punctured; scales intermixed with rather long whitish hairs, a spot in front of scutel and several scattered ones of white scales. Scutel distinct, scaly. Elytra one-third wider at base than the prothorax, slightly widened to behind the middle, sides straight to about the middle, then rounded to the apex; humeri prominent, striæ quite marked, distinctly and remotely punctured, interstitial setæ pale, very small, white scales in irregularly scattered spots; antecoxal ridges distinct; postocular lobes prominent, legs moderately stout; femora clavate, tibiæ parallel, terminal hooks rather small, tarsi slender, third joint bilobed, fourth projecting fully the length of the third; claws as in the preceding. Length 2.75—3.00 mm.; 0.11—0.12 inch.

Hab.—California, Vancouver Island (LeConte).

The above description was taken from specimens in Dr. Horn's collection bearing a label with the specific name in Dr. LeConte's

own handwriting. The elytra are comparatively long and slightly widened posteriorly. Casey's description does not correspond with the above, his statement "Elytra one-half to three-fifths longer than wide," is hardly correct, the prothorax is evidently wider than long, and the punctures are not close set.

S. scalator n. sp.—Oblong-oval, black, densely clothed with small, dirty gray oval scales, mottled each side of the suture with dark brown. Beak (♂) moderately stout, curved, of nearly equal thickness throughout, densely punctured, striate, thinly scaly from base to the insertion of the antennæ, basal tufts distinct: (♀) a little more slender, longer and shining. Antennæ not very slender, inserted two-fifths (♀) or less than one-third (♂) from the apex; second joint of funicle one-half longer than the third, outer joints wider. Head finely alutaceous, front punctulate, scaly. Prothorax one half wider than long, slightly narrowed anteriorly, distinctly constricted at the apex, sides rounded before the middle, nearly straight and somewhat convergent behind, rather closely punctured, punctures small, round, distinct, scales dark brown, paler on the sides, erect setæ not obvious. Scutel distinct. Elytra one-third wider at the base than the prothorax, sides straight for more than one-half their length then gradually rounded to the apex; humeri moderately prominent, rounded; striæ fine, remotely punctured, interspaces flat, setæ whitish, procumbent and not readily visible, second to fourth or fifth each side interruptedly mottled with dark brown, giving a somewhat scalariform appearance, a short white basal line on the third and seventh interspaces; postocular lobes broad, feebly prominent, antecoxal ridges not strongly marked. Legs moderately stout, thighs feebly clavate, tibiæ rather short, stout, subparallel, widened at the apex, latter rather feebly hooked; tarsi not stout, third joint bilobed, fourth moderately long; claws very small, connate two-thirds their length. Length 2.75—3.00 mm.; 0.11—0.12 inch. Plate vii, fig. 15.

Hab.—California. Four specimens, Dr. Horn's and my own coll.

Not closely related to any species known to me. The antennæ are inserted less than one-third from the apex in the male. It resembles *mucidus* of the preceding group, but differs in the presence of the rather feeble antecoxal ridges and the dark mottlings along the suture. Considered as *obtectus* Lec., by Capt. Casey, from which it is at once distinguished by its very small tarsal claws, which are connate nearly to the apex, the elytra much wider at the base than the prothorax and its larger size.

S. lepidus n. sp.—Oblong-oval, dark piceous, the scaly vestiture moderately dense, especially on the underside, scales oval, yellowish, sprinkled with white above. Beak very robust, strongly curved near the base, striate, densely punctured almost to the apex, a median elevated line, dilated about the insertion of the antennæ, not very densely clothed with filiform scales in its basal half; basal tufts almost obsolete, constriction not deep; scrobes oblique. Antennæ robust, inserted a little before the middle (♂), second joint of funicle not longer than the third. Head feebly shining, remotely punctulate and scaly. Protho-

rax a little wider than long, slightly narrowed anteriorly, broadly constricted at the apex, rather broadly rounded on the sides and somewhat convergent toward the base; surface densely, coarsely and deeply punctured, a discal, impunctate line. Scutel moderate, scaly. Elytra two-fifths wider at the base than the prothorax, sides straight and parallel for one-half their length, humeri prominent, distinctly striato-punctate, punctures somewhat remote, third interspace a little widened toward the base, interstitial setæ suberect, quite distinct, scales less dense along the sutural interspaces, sides rather conspicously mottled with white scales, humeri and a short basal line on the third interspace white. Prosternum moderately long in front of coxæ, broadly emarginate, postocular lobes moderate. Thighs not strongly clavate, tibiæ rather robust, feebly emarginate within, apical hooks rather distinct; tarsi moderate, third joint less broadly bilobed, fourth projecting the length of the preceding joint; claws connate one-half their length. Length 2.5 mm.; 0.10 inch. Plate vii, fig. 19.

Hab.—Arizona.

A unique male specimen in Mr. Ulke's collection. Very distinct, closely allied, structurally, to *instabilis*, but differing, aside from coloration, in the very robust, strongly curved beak.

S. quadrifer n. sp,—Oblong-oval, pitchy black, legs reddish, densely clothed with small, oval scales, yellowish white on the underside, brown variegated with white on the sides and apical half of the elytra, dull black on a large, sharply defined, quadrate space extending from near the base to about or slightly beyond the middle. Beak moderate, distinctly though not strongly curved, of nearly equal thickness throughout, scarcely as long as head and prothorax in the male, distinctly longer in the female, rather densely punctured except toward the apex, scaly, substriate each side, basal tufts prominent, incision deep; scrobes rapidly descending. Antennæ moderately stout, inserted one-third (♂) or two-fifths (♀) from the apex, second joint of funicle scarcely longer than the third, outer joints not much wider. Head thinly squamous. Prothorax a little wider than long, feebly narrowed in front, broadly rounded on the sides and not distinctly constricted at the apex; surface not very densely punctured, punctures moderate, interspaces somewhat shining, an indistinct, smooth median line, more distinct before the middle, sculpture not entirely concealed by the scales, a median line and lateral margin whitish. Scutel distinct, glabrous. Elytra scarcely two-fifths wider at the base than the prothorax and more than one-half longer than wide, humeri prominent, sides straight for one-half their length, then broadly rounded to the apex; striæ fine though distinct, interstitial setæ not evident; humeral line and a basal line on the third interspace reaching the large, black space, whitish. Prosternum moderately long in front of the coxæ, antecoxal ridges not very sharply defined, postocular lobes feeble. Legs not very slender, thighs feebly clavate; tibiæ subparallel, apical hooks distinct; tarsi rather slender, fourth joint projecting the length of the preceding, claws connate beyond the middle. Length 2.2—2.5 mm.: 0.09—0.10 inch. Plate vii, fig. 16.

Hab.—Arizona (Casey), Alabama (Mobile, Jülich).

Three specimens in Mr. Jülich's collection are before me. The large quadrate black space of the elytra gives this species a very characteristic appearance. Resembles *instabilis*, for the differentiation from which the student is referred to that species.

S. instabilis Casey.—Oblong-oval, pitchy black, legs reddish, rather densely clothed with elongate oval scales, those on the upper surface yellowish brown with a large sutural spot on the elytra white, before which there is a darker almost blackish space; underside yellowish, or grayish white. Beak robust, nearly straight, scarcely as long as head and prothorax, opaque, except at the apex, punctured and striate, densely scaly in its basal half, tufts prominent; scrobes oblique. Antennæ stout, inserted two-fifths from the apex, second joint of funicle a little longer than the third, outer joints widened. Head finely alutaceous, front not densely scaly, with a few remote punctures. Prothorax a little wider than long, rather strongly narrowed in front, broadly constricted at the apex, rounded on the sides, the latter convergent posteriorly, surface densely but not coarsely punctured, a narrow median line, lateral margin and a sinuous line on each side of the disc and connected by another less distinct, curved, transverse line, whitish. Scutel very small, punctiform. Elytra one-third wider at the base than the prothorax, sides straight, parallel for one-half their length, then gradually rounded to the apex, distinctly striato-punctate; interstitial setæ procumbent, scarcely visible, the large, blackish quadrate space extends from near the base to beyond the middle and is interrupted at the latter by the large, transverse, common sutural spot of large white scales. Prosternum broadly emarginate, postocular lobes distinct. Thighs strongly clavate, tibiæ rather short, not slender, subparallel, slightly widened at the apex, terminal hooks small, though distinct; tarsi moderate, third joint feebly bilobed, fourth projecting a little more than the length of the preceding joint; claws connate for one-half their length. Length 2.2—2.5 mm.; 0.09—0.10 inch.

Hab.—California. Coll. of Dr. Horn and Ulke.

Eight specimens, all males, are before me. Very closely resembles *quadrifer* Casey, but the beak is stouter, nearly straight, the prothorax quite evidently wider than long, rather strongly rounded on the sides, the dark elytral space less sharply defined with the large, white sutural spot very conspicuous and the thighs strongly clavate. The black scales are more easily abraded while the larger scales of the white spot are persistent and generally present even in otherwise badly denuded specimens. Resembles, also somewhat, *spretus*, but the arrangement of the scales is different. Determined for me by Casey as his *instabilis*, the author having a badly abraded specimen for his type. The scales are predominantly yellowish brown, not white.

S. nubilus n. sp.—Oblong-oval, black; legs piceous, rather densely clothed with moderately large, oval yellowish and grayish white scales, nubilated above with areas of darker scales. Beak robust (female), scarcely as long as head and prothorax, cylindrical, rather closely punctured from base to beyond the middle, then more remotely punctured, shining, densely scaly from base to the insertion of the antennæ, basal tufts prominent, incision deep; scrobes scarcely oblique; antennæ robust, first joint of funicle stout, not elongate, second joint of funicle scarcely longer than the third, outer joints scarcely wider, clava densely pubescent, basal joint glabrous. Head finely rugulose, front densely scaly, punctured.

Prothorax a little wider than long, very little wider at the base than at the apex, sides broadly rounded, apex broadly but feebly constricted, surface rather closely punctured, scales uniformly grayish white, intermixed with rather long, erect setæ, an indistinct median and lateral line of condensed scales. Scutel not obvious. Elytra two-fifths wider at the base than the prothorax, ovate, one-half longer than wide, humeri prominent, rounded, sides nearly straight for about one-half their length, then rounded to the apex, striæ impressed, with rather approximate punctures, interstices rugose, setæ long, squamiform, conspicuous; large areas of darker scales along the suture, some smaller patches along the sides; antecoxal ridges distinct; postocular lobes feeble. Thighs feebly clavate, tibiæ rather stout, nearly parallel, terminal hooks very small, tarsi stout, third joint not broadly bilobed, fourth projecting the length of the preceding joint; claws very small, connate a little beyond their middle. Length 2.0 mm.; 0.08 inch.

Hab.—California.

A female specimen in my collection. Closely related to the next species. There is a large abraded spot on the elytral disc before the middle, but from a few remaining scales it appears that in great part at least it was covered with dark scales. Might also be confounded with *instabilis*, but is smaller, the scales rather yellowish than brown, absence of the large, white sutural spot and the femora feebly clavate.

S. posticus n. sp.—Very closely resembles *nubilus* in general form, coloration and arrangement of scales, but differs as follows: beak (♀) less robust, as long as head and prothorax, less densely punctured and scaly, more shining in apical half. Prothorax more than one-half wider than long, more strongly rounded on the sides, coarsely and confluently punctured, punctures arranged in such a way that the intervening ridges form concentric rugæ, sparsely scaly, a feeble, smooth discal line. Scutel distinct, glabrous. Legs rufous; tibial spurs more conspicuous; third tarsal joint broadly bilobed, nearly twice as wide as the second, fourth joint projecting less than the length of the preceding. Length 2.5 mm.; 0.10 inch. Plate vii, fig. 18.

Hab.—Maryland.

A female specimen in Mr. Ulke's collection. More robust and a little larger than the preceding. There is no difference in the elytral coloration worth mentioning. Resembles in form *tychioides* Lec., but is smaller, the beak less robust, scarcely tapering and scaly vestiture equally dense above.

S. seriatus Lec.—Elongate, black, clothed with oval, dirt-colored scales. Beak curved, stout in the male, slightly thicker in the middle, distinctly tapering to the apex, densely punctured, finely striate, scaly toward the base; in the female less robust and cylindrical, about as long as head and prothorax, antennæ inserted two-fifths (♂) from the apex, or very slightly (♀) before the middle, not slender, first joint of funicle stout, second distinctly longer than the third, outer joints wider. Head opaque, finely alutaceous. Prothorax about as long as wide, scarcely narrowed anteriorly, very feebly constricted at the apex, broadly

rounded on the sides, surface (when denuded) coarsely and not closely punctured, interspaces finely granulate, white erect setæ distinct. Scutel distinct. Elytra elongate, narrow, one-third wider at base than the prothorax, humeri prominent; sides straight for three-fifths their length; striæ rather coarse, punctured, interspaces slightly convex, rugose, suberect setæ very distinct, white, piliform, persistent: antecoxal ridges distinct, postocular lobes not very prominent. Femora not strongly clavate, tibiæ parallel, posterior widened toward the apex, apical spurs very feeble; tarsi very stout, broad, the fourth joint projecting distinctly less than the length of the third; claws connate two-thirds their length. Length 1.7 mm.; 0.07 inch.

Hab.—California.

Three specimens in Dr. Horn's collection, all denuded of their scaly vestiture, are before me, the erect setæ, however, giving a pubescent appearance, are very conspicuous. From *pusillus* and *pusio*, both of which it resembles somewhat in form and size, it is distinguished by the presence of antecoxal ridges, the dark piceous legs, and the evident erect setæ; abraded specimens might be confounded with *apionides*, but the latter species is larger, the prothorax wider than long, the scales condensed in spots and the interstitial setæ not evident. From *fraterculus*, with which it agrees in general form and size, it is distinguished by the more coarsely punctured prothorax and the persistency of its elytral setæ.

S. fraterculus n. sp.—Elongate-oblong, black, legs piceous, densely clothed with moderately large, yellowish gray, oval scales. Beak (female) rather stout, feebly curved, as long as head and prothorax, slightly tapering, closely punctured in basal half, more remotely punctured and feebly shining beyond the insertion of the antennæ, densely scaly at the base, tufts evident, constriction not deep; antennæ inserted a trifle before the middle, first joint of funicle robust, second a trifle longer than the third. Head finely rugulose, front punctulate, squamose. Prothorax as long as wide, slightly narrowed anteriorly, sides broadly rounded, apex not constricted, surface closely punctured, punctures small, superficial, interspaces subgranulate, scales intermixed with suberect whitish hairs. Elytra scarcely one-third wider at the base than the prothorax and less than twice as long as wide, humeri prominent, very slightly rounded on the sides before the middle, not deeply striate, punctures distinct, remote, interspaces (when denuded) feebly shining, rugose, setæ small, procumbent, scarcely visible. Prosternum rather short in front of the coxæ, ridges distinct; postocular lobes prominent. Legs moderately robust, anterior tibiæ bicarginate within, hooks small, distinct; tarsi rather robust, third joint not much wider than the second, fourth not very slender, projecting considerably more than the length of the preceding; claws connate for about two-thirds their length. Length 1.75 mm.; 0.07 inch.

Hab.—Arizona.

One ♀ specimen, collected by Mr. Wickham, in my collection. Very closely resembles *seriatus* in form and general habitus, but the

thoracic punctures are fine and very dense, the elytral setæ neither conspicuous nor persistant; also closely allied to *pusillus* of the preceding group, from which it differs by the more dense scaly vestiture, more narrow form, the prothorax less narrowed in front, the legs dark piceous, the third joint of tarsi not much wider than the preceding, and the presence of antecoxal ridges.

S. languidulus n. sp.—Oblong-oval, blackish, legs reddish, not very densely clothed with yellowish gray, oval scales. Beak rather stout, feebly curved, about as long as head and prothorax (♂), densely punctured up to about one-third from the apex, last third feebly shining and more remotely punctured, feebly striate, each stria with a row of piliform scales, basal tufts distinct, incision not deep; scrobes parallel, visible in their whole extent when viewed laterally. Antennæ moderately slender, first joint of funicle stout, second elongate, fully one-half longer than the third. Head finely rugulose, remotely punctulate, front sparsely scaly. Prothorax wider than long, feebly narrowed anteriorly, about three-fourths as wide at the apex than at base, broadly rounded on the sides, not strongly constricted at the apex, surface finely and rather remotely punctured; interspaces very finely rugose, opaque; suberect setæ sparse. Scutel distinct, not scaly. Elytra one-third wider at the base than the prothorax and about twice as long as wide, humeri prominent, sides subparallel for about one-half their length, thence gradually rounded to the apex; striæ very distinct, punctures small, remote; interstitial setæ quite evident, whitish, hair-like. Prosternum moderately long in front of the coxæ, ridges distinct, but feebly prominent; postocular lobes feeble; scales on the abdomen intermixed with erect, white setæ. Legs moderately robust, thinly scaly; femora clavate, tibiæ nearly parallel, anterior feebly biemarginate, terminal hooks prominent, distinct; tarsi stout, third joint broadly bilobed, twice as wide as the preceding, fourth joint projecting about the length of the third; claws connate for two-thirds their length. Length 1.60—1.75 mm.; 0.06—0.07 inch.

Hab.—Maryland, District of Columbia.

Two males in Mr. Ulke's collection. Very similar to *pusillus*, from which it is to be distinguished by its still smaller size, the prosternum longer in front of the coxæ, and the presence of antecoxal ridges; the thoracic punctures are more remote, and the interstitial setæ of the elytra more distinct. From the preceding species it differs by the prothorax distinctly wider than long and more rounded on the sides; legs red, and the third tarsal joint broadly bilobed.

S. tychioides Lec.—Robust, oval, convex, black; legs reddish brown, base of thighs and tarsi blackish, an ill-defined lateral vitta on each elytron, rufous; scaly vestiture sparse above, scales grayish white, varying in size, larger scales condensed in spots or transverse fascia, underside more densely scaly. Beak robust, strongly curved near the base, tapering from base to apex, as long as head and prothorax in the male, a little longer in the female, densely punctured, squamose in its basal half, more shining towards the apex, striate each side, basal tufts nearly obsolete, constriction feeble; scrobes feebly oblique, their upper

margin visible in its whole extent. Antennæ stout, inserted two-fifths from the apex (♂), or about the middle (♀), second joint of funicle distinctly longer than the third. Head shining, remotely punctulate. Prothorax wider than long, about three-fourths as wide at the apex that at base, sides strongly rounded, converging and nearly straight near the base, indistinctly constricted at the apex, surface rather densely, but not coarsely punctured; interstices feebly shining, scales condensed on the basal third of the median line and somewhat on the lateral margin. Scutel distinct, scaly. Elytra two-fifths wider at the base than the prothorax and about one-half longer than wide, humeri prominent, rounded, sides straight for one-half their length then rounded to the apex, distinctly punctato-striate, striæ impressed, not concealed by the scales; interstices finely rugulose, somewhat shining; setæ not evident, humeral and short basal line on third interspace whitish; antecoxal ridges not very prominent, postocular lobes distinct. Legs stout, thighs distinctly clavate, tibiæ subparallel, apical hooks distinct; tarsi stout, third joint bilobed, fourth projecting the length of the third; claws connate beyond the middle. Length 2.5 mm.; 0.10 inch.

Hab.—Kansas, Texas (LeConte), New York (Jülich), District of Columbia (Dr. Horn).

A very distinct form. Very closely allied to *atratus*, from which, on superficial examination, it cannot be distinguished; differs, however, in form of beak, the second joint of funicle distinctly longer than the third, the less strongly convex prothorax and the more sharply impressed elytral striæ, the scrobes are much less oblique and visible when viewed laterally in their whole extent. For the differentiation from *sculpticollis*, which it somewhat resembles, I refer the student to the remarks under the following species, which apply equally well here.

S. atratus n. sp.—Suboval, rather robust, moderately convex, deep black: legs fuscous, base of femora, knees and tarsi dark piceous; underside of body thinly clothed with small, whitish, piliform scales, denser on the thoracic side pieces; above, scales very sparse, condensed in spots or lines, white, variable in size, but mostly very small. Beak (♂) stout, strongly curved, longer than head and prothorax, slightly tapering from the base to the apex, feebly shining, punctured and substriate, very thinly pubescent, basal tufts obsolete, constriction not deep; scrobes very oblique; visible, when viewed laterally, in their apical fourth only. Antennæ stout, inserted two-fifths from the apex, second joint of funicle a trifle longer than the third, outer joints wider, merging into the clava, latter densely pubescent, glabrous at the base. Prothorax wider than long, very little wider at the base than at the apex, latter very feebly constricted, sides rather strongly rounded; surface very densely and rather coarsely punctured, scales condensed on the lateral margin and along the median line. Scutel very small. Elytra oval, two-fifths wider at the base than the prothorax and one-half longer than wide, sides feebly rounded for three-fifths their length, thence broadly rounded to the apex, humeri prominent, rounded, striæ feebly impressed, a little more so near the suture, distinctly punctured, scales condensed on the humeral prominence, a short basal line on the third interspace and in spots on the disc

and the sides. Antecoxal ridges very distinct, postocular lobes feeble. Thighs feebly clavate, tibiæ moderate, subparallel, outer apical angle distinct, tarsi stout, first and second joints not elongate, third distinctly bilobed, fourth projecting about the length of the preceding joint; claws very small, connate two-thirds their length. Length 3.0 mm.; 0.12 inch.

Hab.—Texas.

A male specimen in Dr. Horn's collection. Might be confounded with dark colored specimens of *sculpticollis*, but is larger, more robust, the beak stouter, more strongly curved, the elytra distinctly, though feebly rounded on the sides, and the fourth tarsal joint more slender and projecting about the length of the third. From *cinereus*, which it resembles in size and coloration, it is distinguished by its more rounded sides, stouter form, relatively larger thorax and shorter elytra. A specimen in Mr. Ulke's collection entirely deprived of scales differs in nowise, except that the prothorax is deeply constricted behind the apical margin.

P. congestus Casey.—Elongate-oval, rufopiceous, abdomen and pectus pitchy black, and with the exception of the thoracic side pieces, thinly clothed with elongate-oval or piliform yellow scales, condensed on the elytra in transverse, wavy lines. Beak rather robust, scarcely as long as head and prothorax in the male, a little longer than these in the female, nearly straight, opaque, rather coarsely punctured in the male, more shining and remotely punctured in its distal half in the female, indistinctly subcarinate, feebly striate each side; basal tufts obsolete, incision not deep; scrobes feebly oblique. Antennæ inserted one-third from the apex (♂), or a little before the middle (♀), not very slender, first joint of funicle a little longer than the second, the latter fully one-half longer than the third; clava elongate-oval, smaller than usual, basal joint thinly pubescent, subglabrous. Head subopaque, punctured with a few scattered piliform scales. Prothorax strongly convex, wider than long, not much wider at the base than at the apex, very strongly rounded on the sides, broadly and distinctly constricted at the apex; coarsely and densely punctured, each puncture bearing a strongly recurved, hair-like scale, a narrow median and a less distinct lateral line of condensed scales. Scutel very small, almost invisible. Elytra almost regularly oval, two-fifths wider at the base than the prothorax at its base, humeri prominent, rounded, sides regularly rounded to the apex; striæ well marked, distinctly and distantly punctured; interstitial setæ distinct, humeri basal line on the third interspace and subtransverse wavy bands yellow; brown scales smaller. Antecoxal ridges and prosternal sulcus sharply defined. Legs slender, especially tibiæ, latter feebly biemarginate and setulose along inner margin, rather strongly armed at the apex; tarsi and claws as in the preceding, latter connate a little beyond the middle. Length 2.75 mm.; 0.11 inch. Plate vii, fig. 11.

Hab.—Illinois, District of Columbia. Collection of Dr. Horn and Mr. H. Ulke.

Three specimens of this distinct species are before me. Resem-

bles somewhat *sculpticollis*, but is larger, the prothorax more cribropunctate, the elytra more rounded on the sides and the scales yellow. Since the above was written I have seen another specimen in Mr. Jülich's collection. Casey's statement that the second funicular joint is scarcely longer than the third, the latter elongate, is erroneous; the three specimens before me, examined carefully, prove the second joint conspicuously longer than the third. A typical specimen was kindly determined for me by that author.

S. sculpticollis Casey.—Oblong-oval, dark piceous; antennæ, elytra and legs ferruginous; scaly vestiture sparse above, scales elongate, whitish, condensed in spots and lines on the elytra, a little more closely placed and evenly distributed on the underside, quite dense on the thoracic side pieces. Beak moderately stout, cylindrical, a little longer than head and prothorax, feebly curved, basal tufts small, incision not deep; in the male, feebly shining, punctured, faintly striate, sparsely scaly in its basal half; and in the female more shining, densely punctured at the base and very sparsely scaly; scrobes oblique, visible (when viewed laterally) only in their apical half. Antennæ stout, first joint of funicle robust, second not elongate, a little longer than the third. Head semi-opaque, alutaceous, sparsely scaly. Prothorax wider than long, very little wider at the base than at the apex, latter broadly and feebly constricted, sides rounded, surface rather evenly, closely and coarsely punctured, each puncture bearing a suberect, whitish seta, an indistinct line each side of disc and median basal vitta of white scales. Scutel distinct. Elytra two-fifths wider at the base than the prothorax, less than twice as long as wide, sides straight and parallel for about one-half, humeri prominent, discal striæ more strongly impressed than those on the sides, punctures not very evident, remote; interstices flat, rugose, somewhat shining, suberect setæ not very conspicuous, dusky along the suture, especially near the base; scales forming a short basal line on the third and seventh (humeral) interspaces and are condensed in spots and transverse lines on the disc. Prosternum moderately long in front of coxæ, ridges distinct, rather approximate, postocular lobes prominent. Thighs feebly clavate, tibiæ rather stout, parallel in their apical half, terminal hooks quite distinct; tarsi stout, third joint rather long and broadly bilobed, fourth projecting less than the length of the former; claws connate a little beyond their middle. Length 2.5—2.75 mm; 0.10—0.11 inch.

Hab.—District of Columbia, Iowa, Illinois (Virginia, Indiana, Texas, Casey).

Casey describes the basal constriction of the beak as being very deep and the elytra one-half wider at the base than the prothorax, neither of which is the case in seven specimens before me. Resembles *vestitus* and *commixtus* in the coloration of the elytra, but is readily distinguished by the small, connate claws and stouter rostrum.

S. apionides Casey.—Elongate-oval, entirely black, with some lustre, very sparsely clothed with piliform white scales, condensed in lines and spots above and on the thoracic side pieces. Beak stout, curved, as long as head and pro-

thorax, tapering to apex, punctured in rows, each puncture bearing a claviform, erect scale, feebly striate, with intervening smooth, elevated lines; more shining and less coarsely punctured in the female than in the male; basal tufts obsolete; incision feeble; scrobes as in the preceding. Antennæ rather slender, first joint of funicle stout, second scarcely longer than the third. Head very finely alutaceous, with a few scattered, very fine punctures. Prothorax a trifle wider than long, very little narrowed in front, broadly rounded on the sides, apex scarcely constricted; surface closely and rather coarsely punctured, punctures subconfluent, each bearing a suberect whitish hair, very sparsely scaly, scales more evident on the sides. Scutel distinct. Elytra two-fifths wider than the prothorax, humeri very prominent, sides subparallel for one-half their length, then rounded to the apex, rather coarsely striate, punctures small, remote; interstices slightly rugose, setæ erect, quite evident, scales similarly condensed as in the preceding species. Prosternum long in front of coxæ, ridges distinct. Legs rather stout, femora moderately clavate, tibiæ widened towards the apex, terminal hooks rather prominent; tarsi broad, stout, third joint broadly bilobed, fourth joint projecting scarcely more than one-half the length of the third; claws connate two-thirds their length. Length 2.0 mm.; 0.08 inch.

Hab.—District of Columbia, Maryland, Texas, Kansas, North Carolina (Casey).

Five specimens in Mr. Ulke's collection are before me. Kindly determined for me by Capt. Casey. Why that author should describe the beak as "feebly arcuate" and the elytra at base "three-fifths wider than the prothorax" I cannot understand, as in all the specimens before me the beak is strongly curved and the elytra less than one-half wider at the base than the prothorax.

Subgenus PSEUDROMICRONYX.

Tarsal claws moderate sized (except *perfidus*), connate at their basal third, very rarely to the middle, divergent; the beak in general longer and more slender than in Smicronyx proper; antennæ less stout with the second joint of funicle distinctly longer than the third (except *obtectus* group); tarsi slender, with the fourth joint elongate, much longer than the preceding.

I have divided the species into two quite unequal sections based on the formation of the articulating surfaces of the posterior tibiæ:

Articulating surfaces of posterior tibiæ obliquely ascending and open externally. Plate vii, fig. 20.....Section I.

Articulating surfaces of posterior tibiæ terminal or oblique, and ascending posteriorly. Plate vii, fig. 20*a*.....Section II.

Section I.

Aside from the difference in the structure upon which I have based this section, the species present nothing noteworthy different from those of the following section, except that in two of the species the

claws become quite long, slender and more widely divergent. The second joint of funicle is longer than the third in all, the tarsi very slender, fourth joint very long, at least twice the length of the third, which is broadly bilobed.

In accordance with the general plan here pursued, the small number of species from a group possessing the characters of the section.

Vestitus Group.

The species may be differentiated as follows:

Elytra not ferruginous, claws moderate.
Larger species, posterior thoracic angles rounded.
More robust, prothorax strongly rounded on the sides, postocular lobes less prominent, inconspicuously mottled with gray and pale ochreous scales. **nebulosus.**
More elongate, prothorax less rounded on the sides, postocular lobes prominent, conspicuously mottled with white and yellow,..**ornatipennis.**
Smaller, posterior thoracic angles not rounded, subrectangular.... ...**fallax.**
Antennæ, elytra and legs ferruginous; claws longer, scarcely connate at the base.
Prothorax more broadly rounded on the sides, not distinctly constricted at the apex; elytral setæ quite evident.....**vestitus.**
Prothorax strongly rounded on the sides and strongly constricted at the apex, shining; elytral setæ scarcely noticeable.....**commixtus.**

S. nebulosus n. sp.—Oval, piceous, robust; beak, antennæ and legs rufopiceous, rather densely clothed with pale yellowish and grayish white oval scales, mottled with ill-defined areas of a slightly darker shade. Beak rather slender (female), feebly curved, about as long as head and prothorax, glabrous almost throughout, densely punctured and scaly at the base, scales forming two prominent tufts, basal incision not deep; scrobes oblique; second joint of antennæ nearly twice as long as the third. Head very finely rugulose, front punctulate, scaly. Prothorax wider than long, narrowed in front, strongly rounded on the sides, broadly and markedly constricted at the apex, lateral margin continuing in a curved line to the base, hind angles obsolete; surface densely and subconfluently punctured, interspaces forming concentric rugæ, punctures elongate-oval, rather superficial, scales less dense on the disc. Scutel evident. Elytra fully two-fifths wider at the base than the basal thoracic margin, and but little more than one-half longer than wide, feebly rounded on the sides, striæ not deeply impressed, punctures small, remote; interspaces (when denuded) somewhat shining, slightly rugulose, setæ long, whitish, hair-like, a short line on the base of third interspace white. Prosternum deeply emarginate, prothoracic lobes feeble. Thighs not strongly clavate, tibiæ slender, parallel, slightly widened at the apex, terminal hooks distinct; articulating surface of posterior tibiæ freely open externally; claws connate in their basal third. Length 3.5 mm.; 0.14 inch.

Hab.—District of Columbia, Indiana, New Jersey. Dr. Horn's, Mr. Ulke's and my own collection.

Five female specimens are before me. From *perfidus*, which it resembles in size and the peculiar sculpture of the prothorax it is

distinguished by its strongly rounded prothorax and its relatively larger tarsal claws. A specimen submitted to Capt. Casey for determination was returned as *scapalis* Lec., to which it bears scarcely any similarity, except a remote resemblance in the arrangement and coloration of its scales. Resembles also *maculatus*, but is more elongate and the scales are more grayish or pale ochreous and arranged differently.

S. ornatipennis n. sp.—Oblong-oval, piceous, antennæ and legs rufo-piceous; scaly vestiture dense, consisting of rather large, oval scales, uniformly yellowish gray on the underside, yellow and conspicuously mottled with spots and areas consisting of larger, white scales above. Beak in the male rather stout, somewhat tapering, longer than head and prothorax, slightly curved, rather densely punctured and scaly in its basal half, somewhat shining beyond, scales intermixed with white erect setæ, in the female longer than head and prothorax, slender, shining, punctured and pubescent in its basal third; basal tufts conspicuous, incision deep; scrobes scarcely oblique. Antennæ slender, inserted one-third from the apex (♂), or a trifle behind the middle (♀), second joint of funicle almost twice as long than the third. Head as in the preceding species. Prothorax wider than long, moderately narrowed in front, broadly but not strongly constricted at the apex, sides feebly rounded, hind angles rounded, base feebly biemarginate; surface apparently densely, but not coarsely punctured, punctures concealed by the dense, scaly vestiture, which is only very feebly mottled with whitish on the sides, scales intermixed with erect, white setæ. Scutel triangular, moderately large, scaly. Elytra two-fifths wider at the base than the prothorax, and nearly three-fourths longer than wide, sides straight and parallel for one-half their length, then gradually rounded to the apex, humeri prominent, striæ rather fine, punctures small, approximate; interstices flat, setæ erect, hair-like, conspicuous; the white scales are especially conspicuous on a short basal line on the third interspace, less so in subquadrate areas and spots on the disc. Prosternum deeply emarginate, with feeble, antecoxal ridges, postocular lobes prominent, completely concealing the eyes in repose. Legs, tarsi and claws, as in the preceding. Length 3.25 mm.; 0.13 inch. Plate vii, fig. 21.

Hab.—California, Texas. A male and female specimen are before me. Mr. Ulke's and my collection.

Distinguished from *nebulosus* by its more elongate, less robust form and rather brightly ornate elytra, the postocular lobes are more prominent, the scales are larger, more crowded, and the interstitial setæ quite distinct.

S. fallax n. sp.—Very similar in form and habitus to the preceding species, but smaller and a little more robust; oblong-oval, black; beak, antennæ and legs rufous, or rufo-piceous. Scales not crowded, rather small, oval, gray or yellowish on the underside, yellowish and yellowish brown, variegated with lines of white scales above. Beak: male, robust, curved, as long as head and prothorax, punctured, with rows of erect setæ, from base to about its middle, feebly punctured

and somewhat shining beyond, a smooth median line, commencing about one-third from the base and reaching the apex, very finely striate each side, scrobes scarcely oblique; female, same as in the preceding species; basal tufts prominent, incision deep. Antennæ inserted two-fifths from the apex (♂), or a little behind the middle (♀), second joint of funicle nearly twice the length of the third. Head finely rugulose, front scaly, shining when denuded of scales. Prothorax fully one-half wider than long, narrowed in front, broadly rounded on the sides, apex broadly constricted, posterior angles distinct, surface not coarsely or very closely punctured; a fine, impressed, median line, scales quite dense on the sides, less along middle of disc, intermixed with erect, yellowish hairs or setæ. Scutel distinct. Elytra one-third wider at base than the prothorax, sides straight and parallel for one-half their length; striæ and punctures more pronounced, interstitial setæ quite distinct, hair-like, yellowish. The white scales form a more or less interrupted line on the third and fifth interspaces and basal line on the seventh, giving a subvittate appearance, rest of surface mottled with spots of less pale scales. Prosternum and legs as in *ornatipennis*. Length 2.75 mm.: 0.11 inch.

Hab.—Texas (Luling, Wickham), Kansas (Ulke).

Varies somewhat in appearance, according to the predominence of the paler or darker scales. In some specimens the pale elytral lines, with the exception of the basal line on the third interspace, are entirely obsolete.

S. vestitus Lec.—Elongate-oblong, black; beak, antennæ, elytra and legs reddish, scaly vestiture consisting of elongate, yellowish scales, without mottling, not at all dense above, more so on the underside. Beak as long, or a little longer than head and prothorax, slender, curved, of equal thickness throughout, basal tufts distinct, incision not deep; in the male punctured for more than one-half its length, shining near the apex, sparsely scaly from base to the insertion of the antennæ; female: sparsely punctured and scaly from base to the insertion of the antennæ, shining beyond; scrobes scarcely visible when seen from the sides. Antennæ inserted a trifle before (♂) or behind the middle (♀), slender, second joint of funicle nearly twice as long as the third. Head rugulose, with a few scattered punctures and scales. Prothorax a little wider than long, slightly narrowed anteriorly, not constricted at apex, broadly rounded on the sides, not densely or coarsely punctured, each puncture bearing a suberect, piliform scale, scales more closely placed along the median line and on the sides. Scutel distinct. Elytra two-fifths wider at the base than the prothorax, nearly straight for fully one-half their length, then obliquely narrowed to the apex, rather coarsely striate, finely and remotely punctured, third interspace wider at the base, interstitial setæ erect, long, conspicuous, scutellar space and along the suture dusky. Prosternum not very deeply emarginate, postocular lobes feeble. Thighs rather strongly clavate, tibiæ not very slender, widened at tip, terminal hooks small, but distinct; articulating surface of posterior tibiæ widely open and obliquely ascending externally, the claws are long, divergent and connate at the base only. Length 2.0—2.75 mm.; 0.08—0.11 inch. Plate vii, figs. 9c and 20.

Hab.—Dakota, Colorado, Kansas, Montana.

An easily recognized species; closely allied to and readily con-

founded with the next. The above description corresponds with a specimen in Dr. Horn's collection bearing the specific name, and also with the description given by Casey of this species, except as it relates to the beak in the male, which certainly does not correspond with any of the male specimens before me. Dr. LeConte's description is defective and misleading, the terms "robust," and "prothorax densely and coarsely punctured," do not apply here, nor is any reference more to the reddish color of the elytra.

S. commixtus n. sp.—Very similar in form, color, scaly vestiture and formation of claws to the preceding species, from which it differs as follows: prothorax distinctly wider than long, strongly rounded on the sides, narrowed anteriorly and distinctly constricted at the apex, less densely punctured, interspaces shining; the elytral setæ are very small, scarcely visible. Length 2.5—2.75 mm.; 0.10—0.11 inch.

Hab.—Montana.

Section II.

By far the larger number of species of the present subgenus are comprised in this section. The articulating surfaces of the posterior tibiæ are not freely exposed when viewed externally, generally terminal or exposed posteriorly. According to differences in the formation of the antennal funicle and rostrum I have arranged the species into three groups as follows:

Beak distinctly curved, Plate viii fig. 23.
Second joint of funicle distinctly longer than the third, generally elongate. *Corniculatus Group.*
Second joint of funicle not or scarcely longer than the third, never elongate. Plate viii fig. 24. ..... *Obtectus Group.*
Beak straight. Plate viii fig. 23*a*. ..... *Griseus Group.*

Corniculatus Group.

With the exception of the last three species, the members of this group are quite homologous, moderately stout, convex insects. The beak distinctly curved, second joint of funicle longer than the third. They are closely related and difficult to distinguish. With more extensive series some of the species may prove to be mere varieties, while some forms here considered as varieties may be entitled to rank as species.

With these prefatory remarks I offer the following table for the separation of the species:

Claws very small, scarcely divergent, posterior tibial hooks scarcely perceptible. **perfidus.**

Claws moderate, divergent, posterior tibial hook distinct.

Conspicuously variegated above, scales variable in size.

Larger, scales predominently yellow, or ochreous gray, mottled with pale brown ..... **maculatus.**

Smaller, scales predominently dark brown, mottled with whitish. **columbianus.**

Scales unicolorous or nearly so, not conspicuously mottled above, scales suborbicular or broadly oval, scarcely varying in size.

Dark piceous or black, legs reddish or rufo-piceous, scaly vestiture dense.

Antennæ of male inserted just before the middle, scales ochreous or yellowish gray, prothorax strongly rounded on the sides. **californicus.**

Antennæ of male inserted two-fifths from the apex, scales predominently dark brown, rarely pale, inconspicuously mottled.

Stouter form, prothorax wider than long, sides distinctly rounded. Atlantic slope species.

Elytral setæ not obvious..... **corniculatus.**

Elytral setæ distinct, long, hair-like..... **lanuginosus.**

More slender, prothorax not wider than long, broadly rounded on the sides. Pacific slope species..... **spurcus.**

Entirely reddish or ferruginous; scaly vestiture less dense.

Elytra suddenly and much wider at the base than the prothorax, latter coarsely punctured.

Prothorax not wider than long, very broadly rounded on the sides. **abnormis.**

Prothorax wider than long, rounded on the sides..... **vitiosus.**

Elytra not suddenly wider at the base; prothorax finely punctate. **rufulus.**

S. perfidus n. sp.—Sub-oval, robust, rufopiceous, legs rufous, not densely clothed with small, grayish and pale brown scales, the latter very small. Beak (male) rather stout, feebly curved and slightly tapering from base to apex, feebly substriate from base to beyond the middle, striæ punctured, a median, smooth, elevated line, finely grooved about the middle, shining toward the apex, thinly clothed with suberect, piliform scales; scrobes subparallel, upper margin visible in its whole extent; basal tufts feeble, incision marked; antennæ slender, inserted a little before the middle, second joint nearly twice the length of the third, outer joints scarcely wider. Head rugulose, remotely punctured and sparsely clothed with hair-like scales. Prothorax a little wider than long, feebly narrowed in front, broadly but not obviously constricted at the apex, regularly rounded on the sides, surface densely and coarsely punctured, punctures elongate, directed obliquely toward the median line and subconfluent in their longitudinal axis, giving thereby the appearance of oblique striations with intervening ridges, a smooth median line, confined to the middle two-fourths, scales very sparsely placed, a little more dense on the sides, erect setæ short. Scutel distinct, scaly. Elytra two-fifths and rather suddenly wider at the base than the prothorax, with the humeri prominent, slightly impressed on the sides behind the latter, a trifle widened to behind the middle, sides nearly straight one-half

their length, rather finely striato-punctate, punctures remote, interspaces flat, fourth, fifth and sixth narrowed toward the base, setæ erect, yellowish, evident, the pale scales forming a line on the base of the third interspace and irregular, transverse bands on the disc. Legs long and slender, femora feebly clavate, tibiæ parallel, slightly widened at the apex, terminal hook of anterior and middle pair quite distinct, posterior extremely small; claws very small, connate one-third their length. Length 3.5 mm.; 0.14 inch.

Hab.—Iowa.

A single male specimen in Mr. Ulke's collection is before me. Remarkable for the very small claws and terminal hook of posterior tibiæ. It resembles *nebulosus* and *maculatus*, to which the student is referred for reference. Since the above was written I have discovered another specimen among Dr. Horn's material; it agrees with the above, but has the prothorax a trifle more rounded and the posterior tibial hook a little more distinct, labeled Kansas.

S. maculatus n. sp.—Oval, robust, rufo-piceous, legs reddish, rather densely clothed with oval scales, grayish white on the underside, above pale brown and smaller, mottled with oblique or subtransverse, irregular bands of larger yellow or grayish yellow scales. Beak long and slender, cylindrical curved, basal tufts conspicuous, incision not deep; male: a little longer than head and prothorax, subopaque, punctured in its basal half, which is thinly clothed with hair-like scales, apical half feebly punctate; female: slender, considerably longer than head and prothorax, less punctured and more shining than in the male; scrobes subparallel. Antennæ inserted two-fifths from the apex (♂), or at the middle (♀), slender; first and second joints of funicle elongate, latter nearly twice as long as the third, outer joints scarcely wider. Head almost without lustre, punctured, front scaly. Prothorax fully one-half wider than long, moderately narrowed anteriorly, strongly rounded on the sides, apex distinctly but not broadly constricted, densely and coarsely punctured, punctures almost entirely concealed by the scales, erect setæ not very conspicuous, a narrow median line and two spots on each side of the disc of pale scales. Scutel small, distinct. Elytra less than one-third wider at the base than the prothorax, sides nearly straight for one-half their length, finely striato-punctate, interstitial setæ rather short, not at all conspicuous. Thighs clavate, tibiæ slender, nearly parallel, hooks distinct, claws connate one-third their length. Length 3.0–3.5 mm.; 0.12—0.14 inch. Plate viii, fig. 20*a*.

Hab.—Pennsylvania, Allegheny Co. (Hamilton), Dakota (Ulke).

Closely resembles *perfidus*, from which it differs by its more transverse and differently sculptured prothorax, the larger claws and distinct posterior tibial hook. Capt. Casey determined this species as *flavicans* Lec., which is an altogether different insect, from *nebulosus*, to which also it bears considerable resemblance; it differs by its more robust form and more bright yellowish scales.

S. columbianus n. sp.—Elongate-oval, piceous, legs reddish, densely clothed with elongate, brown scales, paler on the underside, conspicuously va-

riegated above with grayish white. Beak curved, moderately robust, punctured and scaly from base to the insertion of the antennæ, shining toward the apex in the male, slender, longer than head and prothorax and more shining in the female, a basal tuft of yellowish scales each side of the base quite marked, incision pronounced. Antennæ as in the preceding species, but outer joints of funicle a little more widened, inserted two-fifths from the apex in the male and a trifle behind the middle in the female. Head opaque, finely rugulose, front punctured and scaly. Prothorax less than one-half wider than long, scarcely more than one-fourth wider at the base than at the apex, latter scarcely constricted, not strongly rounded on the sides, punctures rather small and not very close, concealed by the almost unicolorous, closely adherent scales intermixed with short, erect brownish hairs, giving the surface a rather even, smooth appearance, a few paler scales along the lateral margin, two white spots each side of the disc, median vitta almost obsolete. Scutel very small, rounded, glabrous. Elytra one-third wider at the base than the prothorax and about one-half wider than long, humeri prominent, sides straight, parallel for one-half their length, then broadly rounded to the apex; striæ fine, punctures small, quite remote and difficult to discern with the scales intact, interstitial setæ very fine, short and scarcely visible, a white line on the basal fifth of the third and seventh interspaces, another on the second and third fifths of the fifth interspace, a subtransverse line one-fourth from the base connecting the longitudinal lines; besides these there are some irregular discal spots. Prosternum deeply emarginate with not very distinct antecoxal ridges. Legs as in the preceding species; claws connate for one-third their length. Length 2.75—3.0 mm.; 0.11—0.12 inch. Plate viii, fig. 22.

Hab.—District of Columbia.

Two males and one female specimen in Mr. Ulke's collection. A distinct species. Resembles in size and form *corniculatus*, but differs from that species by its distinctly mottled upper surface, differently shaped scales and less coarsely punctured prothorax.

S. californicus n. sp.—Elongate-oval, dark piceous, legs reddish, densely clothed with large, broadly oval, yellowish gray or ochreous scales, more dense on the underside than above. Beak very similar to that of the preceding species, a trifle stouter, that of the female somewhat thickened from base to the insertion of the antennæ, more coarsely punctured and densely scaly, with suberect piliform scales in the male. Antennæ inserted at the middle (♂), or a little behind the middle (♀), first joint of funicle not very stout, second nearly twice the length of the third. Head as usual. Prothorax one-half wider than long, one-fourth wider at the base than at the apex, the latter broadly and distinctly constricted, broadly rounded on the sides, very slightly narrowed toward the base, surface densely, coarsely and subconfluently punctured, punctures entirely concealed by the scaly vestiture, latter intermixed with erect, claviform setæ. Scutel very small, glabrous. Elytra one-third wider at the base than the prothorax and a little more than one-half longer than wide; sides straight and parallel for one-half their length, then broadly rounded to the apex; striæ fine, punctures small, remote, concealed by the scales, interspaces flat, feebly convex posteriorly, and where deprived of scales, finely rugose, shining, each with a row of remote punctures, setæ procumbent, whitish, scarcely visible, a whitish basal

line on the third interspace, surface not or very indistinctly mottled with slightly darker scales. Thighs not strongly clavate, tibiæ slender, especially the anterior, widened and all distinctly hooked at the tip; claws connate nearly to the middle. Length 2.75—3.0 mm.; 0.11—0.12 inch.

Hab.—California, Arizona.

Seven male and two female specimens, Dr. Horn's and Mr. Ulke's collection. A male specimen from Arizona in Mr. Ulke's collection has the thorax a little more strongly rounded and the antennæ inserted two-fifths from the apex. From *fallax*, which it resembles in size and form, it is distinguished by its differently colored scales and the articulating surfaces of the posterior tibiæ not freely open and ascending externally. From *obtectus*, to which Casey referred a specimen of this species sent him for determination, it is easily distinguished by the elongate second joint of the funicle, the elytra distinctly wider at base than the prothorax and its nearly uniform, pale ochreous vestiture.

S. corniculatus Fab.—Oblong-oval, moderately convex, black, legs reddish, scaly vestiture dense, consisting of oval or suborbicular, grayish brown scales, paler on the underside. Beak curved in the male, moderately robust, cylindrical, scarcely tapering, punctured and scaly in its proximate half and about as long as head and prothorax in the female, quite slender, somewhat tumescent, scaly and punctured near the base, shining beyond, basal tufts quite distinct. Antennæ inserted two-fifths from the apex (♂), or a trifle behind the middle (♀), first joint of funicle rather large, second about one-half longer than the third, front punctured and scaly. Prothorax a little wider than long, narrowed in front, not distinctly constricted at the apex, somewhat narrowed behind, rounded on the sides, surface coarsely and subconfluently punctured, punctures concealed by the scales, latter intermixed with small, suberect, scale-like hairs. Scutel very small. Elytra two-fifths wider at the base than the prothorax, and about one half longer than wide, humeri prominent, sides straight for one-half their length, striæ fine, remotely punctured, nearly concealed by the scales, interspaces nearly flat, finely rugose, somewhat shining (where denuded), interstitial setæ not evident. Thighs feebly clavate, tibiæ slender, somewhat widened and distinctly hooked at the apex in all, claws connate one-third their length. Length 2.0—3.0 mm.; 0.08—0.12 inch. Plate viii, fig. 23.

Hab.—Eastern States.

Numerous specimens of this species are before me. Dr. LeConte's description does not apply to the species under consideration, but rather to *pauxillus;* the prothorax is not strongly rounded on the sides and the scales not narrow, white or yellow.

The material before me, while agreeing in all essential characters, presents some notable variations worthy of special mention, as follows:

Var. *a*.—Indistinctly mottled with spots of pale scales, a pale basal line on the third interspace quite distinct.

Var. *b*.—General appearance more gray, humeral and short basal line on the third and longer line on the fifth interspaces pale, surface more distinctly mottled, punctures of prothorax a little smaller and less dense. This variety has been described by Casey as *flavicans* Lec., a specimen of which in Mr. Jülich's collection and labeled in Capt. Casey's own handwriting, is before me. To this variety I also refer three specimens in Mr. Ulke's collection from Kansas, differing by being a little smaller in size and the beak of the male a little longer than head and prothorax.

Var. *c*.—Smaller than the typical form, scales entirely grayish white, interstitial setæ short, but more evident. The pale grayish scales give this variety a quite distinct appearance; it is represented by a single specimen in Mr. Ulke's collection from Pennsylvania.

Var. *d*.—Another small variety, has the prothorax less densely punctured and somewhat shining, the punctures not entirely concealed by the scales; the prosternum, also, is rather deeply emarginate and very short in front of the coxæ; the scales are pale brown, mottled with ill-defined, pale spots. Two specimens. District of Columbia, collection of Ulke.

The last two may prove to be distinct species.

S. lanuginosus n. sp.—Also closely related to *corniculatus*, from which it differs by its smaller size, the prothorax more evidently wider than long, less coarsely and less confluently punctured, the elytra less than one-third wider at the base than the prothorax; the scales are rather large, broadly oval, of a dirty gray color and intermixed with very conspicuous, long, hair-like setæ, giving the insect a quite hirsute appearance. Length 2.0 mm.; 0.08 inch.

Hab.—District of Columbia, Pennsylvania.

Two specimens, Dr. Horn's and my own collection. Dr. Horn's specimen bears the label "*corniculatus*."

S. spureus Casey.—Elongate, piceous, legs paler, very densely scaly, scales large, oval, yellowish gray on the underside, pale brown above, lateral margin and median vitta of prothorax and a few small spots on the elytra of white scales. Beak in the male stout, distinctly curved, a little longer than head and prothorax, tapering from base to apex, punctured, striate and squamose almost to the apex, scales intermixed with erect bristles, former forming a prominent basal crest, incision deep, in the female long, slender and shining, scrobes oblique. Antennæ very slender, inserted two-fifths from the apex (♂), or at the middle (♀), first joint of funicle rather slender, second one-half longer than the third, outer joints scarcely wider. Head with a feeble lustre, finely alutaceous, front punctulate, scaly. Prothorax scarcely wider than long, narrowed

anteriorly, very broadly rounded on the sides, scarcely wider at middle than at base, apex very broadly, though not strongly constricted, punctures apparently not closely placed, entirely concealed by the large, oval scales, intermixed with rather conspicuous setæ, having the same color as the scales, the latter diverging from the median line. Scutel very small, scaly. Elytra one-third wider at the base than the prothorax, oblong, nearly twice as long as wide, sides nearly straight, subparallel, for fully one-half their length, striæ very fine, punctures minute, remote, almost entirely concealed by the scaly vestiture; interstitial setæ of moderate length, prominent and not very evident. Prosternum moderately long in front of the coxæ, not deeply emarginate. Thighs moderately clavate, tibiæ not slender, somewhat widened to the apex, apical hooks less evident than in the preceding species; claws connate near the base only. Length 2.5 mm.; 0.10 inch.

Hab.—Arizona (Wickham).

Two males and one female, Dr. Horn's and my own collection. Quite distinct, more elongate with the sides less rounded than in *corniculatus*. A female specimen in Dr. Horn's collection has quite a large spot of white scales about the middle of the elytra. Determined for me by Capt. Casey.

S. abnormis n. sp. Sub-oval, robust, dark ferruginous, scaly vestiture more dense on the upper surface, scales rather large, broadly oval, whitish, scarcely variegated with pale yellow. Beak moderately stout, curved, as long as head and prothorax, of equal thickness throughout, densely but finely punctured with an indistinct, median, elevated line, sparsely squamose, basal tufts obsolete, incision not deep, scrobes oblique. Antennæ stout, inserted a little before the middle, first joint of funicle robust, second not elongate, one-half longer than the third, outer joints wider. Prothorax a trifle longer than wide, slightly narrowed anteriorly, sides nearly straight behind the anterior third, subparallel, scarcely wider at the middle than at the base, feebly rounded anteriorly and broadly constricted at the tip, surface coarsely and rather closely punctured, subconfluent behind the middle, scales not very closely placed, erect setæ not evident. Scutel elongate, triangular. Elytra two-fifths and rather suddenly wider at the base than the prothorax and less than one-half longer than wide, sub-ovate, a little wider behind the middle, with the sides nearly straight for one-half their length, then rather suddenly narrowed to the apex, coarsely striate, striæ not concealed by the scales, punctures distinct, elongate, remote, interstices slightly convex, with the scales intact, flat, when denuded, rugulose, feebly shining, setæ whitish, procumbent. Prosternum deeply emarginate, short in front of the coxæ; femora very feebly clavate, tibiæ rather long, slightly widened toward the apex, outer apical angle prominent; claws connate in their basal third. Length 3.0 mm.; 0.12 inch.

Hab.—New Mexico.

A single male specimen in my collection. An isolated form, differing materially from all the preceding species of this group by its ferruginous colors, form of thorax and the prominent outer apical angle of the tibiæ. The above specimen is partially abraded. Very closely related if not identical with the next species.

S. vitiosus n. sp.—Agrees with the preceding in appearance, but is less robust, more elongate, formation of beak, antennæ and legs the same; it differs as follows: scales smaller, whitish, beak a little more slender. Prothorax wider than long, narrowed in front, rounded on the sides, not constricted at the apex, widest at the middle, punctures smaller, round, more remote and not at all confluent. Scutel rather large, rounded. Elytra oblong, more than one-half longer than wide, not widened behind the middle, sides straight, parallel, impressed behind the humeral angle. The prosternum is longer in front of the coxæ, not deeply emarginate. Length 3.0 mm,; 0.12 inch.

Hab.—Walnut, Ariz. (Wickham).

One male specimen in my collection, but for the pronounced difference in the form and punctuation of the prothorax, it does not differ from the preceding.

S. rufulus n. sp.—Elongate-oval, ferruginous, elytra and legs a shade paler, the scaly vestiture consisting of rather small, oval, pale, semi-transparent scales, a little more dense on the underside than above. Beak somewhat slender, curved, slightly thickened from base to the insertion of the antennæ, shining, punctured and scaly near the base (♀), basal tufts nearly obsolete, constriction feeble; scrobes not oblique. Antennæ inserted two-fifths (♀) from the base, slender, second joint of funicle one-half longer than the third. Head sparsely punctured and scaly. Prothorax a little wider than long, narrowed in front, broadly but not strongly constricted at the apex, rounded on the sides before the middle, nearly straight, and somewhat convergent behind, surface rather finely punctured, punctures not crowded, intervals feebly shining, scales condensed on the sides, intermixed with suberect, scale-like hairs. Scutel punctiform. Elytra less than one-third wider at the base than the prothorax, suboval, very feebly rounded on the sides, humeri not very prominent, rounded, striæ distinct, not concealed by the scales, punctures not very obvious, setæ suberect, rather distinct. Prosternum rather short in front of the coxæ, postocular lobes not very prominent. Thighs moderately clavate, tibiæ feebly emarginate within, terminal hooks distinct; claws slender, third joint not very broadly bilobed, fourth moderately long; tarsi rather small, connate nearly to the middle. Length 2.2—2.5 mm.; 0.09—0.10 inch.

Hab.—New Mexico, Arizona (Riverside, Wickham).

Two females in my collection. Resembles the preceding species in coloration, but is less robust, in fact one of the above specimens is rather slender, the prothorax is more finely punctured, the elytra much less wider at base than the prothorax and the striæ finer; the outer apical angle of the tibiæ is not produced.

Obtectus Group.

The species comprising this group have the antennæ more robust and the second joint of funicle not or only very little longer than the third. The apical hook of the tibiæ indistinct in all of them; third tarsal joint narrow, or feebly bilobed. They differ greatly in appearance, and are readily distinguished as follows:

Tarsi narrow, third joint not or very little wider than the second joint. Plate vii, fig. 4*a*.

Elytra very little wider at the base than the prothorax, scales mottled. **obtectus.**

Elytra distinctly wider at the base than the prothorax; scales unicolorous, or nearly so.

More robust, scales ochreous, indistinctly mottled with paler.....**parcus.**

Less robust, scales uniformly grayish white .....**albosquamosus.**

Tarsi stouter, third joint distinctly, though not broadly bilobed; scales dirty, grayish brown, somewhat matted .....**lutulentus.**

S. obtectus Lec.—Elongate-oblong, entirely pitchy black, shining when denuded of its scaly vestiture, the latter dense, consisting of large, oval, brown and whitish scales in varying proportion, giving to the insect an undefined, variegated appearance, underside grayish white. Beak in the male shorter than the prothorax, robust, tapering from base to apex, punctured and densely squamose from base to the insertion of the antennæ, remotely punctate and shining beyond; in the female nearly as long as the prothorax and almost straight, very feebly tapering, less densely punctured and more shining; basal tufts quite distinct. Antennæ stout, inserted a trifle before (♂), or about the middle (♀), second joint of funicle as long as the third in the male, a trifle longer in the female, outer joints of funicle wider, front remotely punctate, densely scaly. Prothorax not wider than long, narrowed in front, about three-fourths as wide at the apex than at base, distinctly constricted at the apex, rounded on the sides before the middle, feebly rounded and slightly converging toward the base, surface densely and rather coarsely punctured, a distinct, smooth median line, abbreviated before and behind, lateral margin, a median line and another interrupted vitta each side of disc consisting of pale scales, erect setæ not obvious. Scutel small, rounded. Elytra a little wider at the base than the prothorax and less than one-half longer than wide, oblong, humeri rounded, feebly rounded on the sides, striæ very fine, nearly obliterated with the scales intact, when denuded fine, superficial with remote, elongate punctures, interstitial setæ rather stout, nearly prostrate and scarcely discernible, pale scales prominent on the sides and form a basal line on the third interspace. Prosternum rather long in front of the coxæ, not deeply emarginate, postocular lobes prominent. Legs rather stout, femora distinctly clavate, tibiæ widened from base to apex, anterior subparallel, and obliquely truncate at tip, tarsi narrow, third joint scarcely wider than the second, fourth long and slender; claws connate for about one-third their length. Length 2.25—3.0 mm.; 0.09—0.12 inch. Plate vii, fig. 4*a*.

Hab.—California.

Easily recognized by the large prothorax, the elytra very little wider at base than the prothorax and the narrow third tarsal joint. It appears to be common.

Some specimens have the humeral angle a little more prominent with the sides of the elytra nearly straight; they do not, however, differ otherwise. Varies considerable in the general color of its scaly vestiture; some specimens present an almost unicolorous, pale brown appearance.

S. parcus n. sp.—Oval, moderately convex, dark piceous, scaly vestiture very dense and consisting of large, oval, overlapping, ochreous and yellowish white scales, intermixed on the prothorax with erect, scale-like hairs. Beak stout, feebly curved, a little longer (♂) than head and prothorax, entirely without lustre, except at the very apex, densely punctured and substriate nearly throughout, scaly in its basal half, basal tufts prominent, constriction deep, serobes subparallel. Antennæ moderate, inserted two-fifths from the apex, second joint of funicle not longer than the third. Head scaly. Prothorax a little wider than long, narrowed in front; sides nearly straight and parallel in their basal half, rounded before the middle, broadly constricted at the apex, punctures concealed by the scales, a median entire line and an indistinct one each side of disc and lateral margin, whitish. Scutel distinct, scaly. Elytra two-fifths wider at the base than the prothorax and a little more than one-half longer than wide, sides straight, parallel for one-half their length, then rounded to the apex, striæ fine, nearly concealed by the scales, interstices flat, subconvex on the declivity, setæ suberect, rather conspicuous, an inconspicuous pale line, occupying almost the entire third interspace. Prosternum rather short, postocular lobes prominent. Legs moderately robust, densely scaly. Thighs moderately clavate, tibiæ stout, subparallel, scarcely widened at the apex, terminal hooks small, though distinct; third joint of tarsi feebly bilobed and but little wider than the preceding; claws rather smaller than usual, connate nearly to the middle, distinctly divergent. Length 2.7 mm.; 0.11 inch.

Hab.—Nevada.

A male specimen in Mr. Ulke's collection. In appearance it resembles *californicus* very closely, but is easily distinguished by the shorter second funicular joint, less distinct tibial hooks, rather feebly bilobed, third tarsal joint and the rather small tarsal claws.

S. albosquamosus n. sp.—Oblong, subovate, black, scaly vestiture dense, consisting of uniformly grayish white, oval scales. Beak moderate, curved, of nearly equal thickness throughout, about as long as head and prothorax, punctato-striate, scaly towards the base, with the basal tufts very feebly developed, feebly shining in its distal half in the male, more so in almost its entire length in the female; basal constriction very feeble; scrobes almost entirely inferior, visible when viewed laterally, only in their beginning. Antennæ slender, inserted a little before (♂), or at the middle (♀), second funicular joint not longer than the third (♂), or a mere trifle (♀), outer joints very little wider. Head densely scaly. Prothorax as long as wide, very little narrowed anteriorly, broadly rounded on the sides and broadly constricted at the apex, the latter scarcely narrower than the base, surface coarsely punctured, punctures close set and concealed by the large, oval scales, intermixed with suberect, whitish hairs. Scutel very small, scaly. Elytra less than one-third wider at the base than the prothorax, subovate, slightly widened to and straight on the sides beyond the middle, then broadly rounded to the apex, striato-punctate, striæ and punctures entirely concealed by the scales, interstitial setæ suberect, distinct, whitish. Prosternum transversely impressed, postocular lobes feeble. Legs moderate, thighs not strongly clavate, tibiæ slightly widened from base to apex, terminal hooks distinct on all; tarsi moderate, third joint not bilobed, a little wider than

the preceding joint, fourth much longer than the third ; claws connate one-third their length. Length 2.5—2.75 mm.; 0.10—0.11 inch.

Hab.—Arizona.

Two specimens, ♂ and ♀, Mr. Ulke's and my own collection. My specimen was collected by Mr. Wickham. A rather unusual form, resembling somewhat *Anthonomus affinis* Lec. in form and color of its scales ; the latter, in conjunction with the form of thorax, short second joint of funicle and narrow tarsi, makes this species easy of recognition.

S. Intulentus n. sp.—Oblong-oval, black, shining when denuded of scales, densely clothed with closely adherent and somewhat matted together, dark, dirty gray or brownish scales. Beak (male) somewhat slender, curved, cylindrical, subopaque, punctured and scaly nearly throughout, except near the apex ; basal tufts prominent, incision rather deep. Antennæ moderate, first joint of funicle robust, second and third equal, short, clava small, basal joint subglabrous. Head punctured and scaly. Prothorax one-half wider than long, narrowed anteriorly, about one-fourth wider at the base than at the apex, rounded on the sides, apex constricted, densely punctured, punctures entirely concealed by the scales, latter intermixed with stout, erect, scale-like hairs. Scutel very small, almost invisible. Elytra one-third and rather suddenly wider than the prothorax, a little more than one-half wider than long, humeri prominent, sides approximately straight for one-half their length, then broadly rounded to the apex, striæ impressed, not concealed by the scales, punctures somewhat approximate, interstices slightly convex, setæ erect, paler than the scales, obvious. Prosternum not short in front of the coxæ, postocular lobes not very prominent. Thighs strongly clavate ; tibiæ not slender, widened toward the apex, anterior emarginate in their distal half within ; tarsi not very slender, third joint feebly bilobed ; claws free nearly to the base. Length 2.0 mm.; 0.08 inch.

Hab.—Texas.

Two males, Mr. Ulke's and my own collection. The dirty, grayish brown color of its mattet scales, small size and short second funicular joint readily distinguish this species from any other of the present subgenus. From *pusillus,* which it resembles somewhat in appearance, it is distinguished by its more compact form and dark blackish legs.

Griseus Group.

The few species comprising this group recall here the facies of certain *Desmoris.* The beak is straight, or approximately so ; slender, especially in the female, the second joint of the funicle longer than the third. The tarsi long and slender, the third joint deeply and broadly bilobed, and the fourth shorter than the two preceding joints combined.

They may be distinguished as follows :

Rufopiceous, scales ochreous, rather dense, mottled or unicolorous, prothoracic punctures deep, not confluent.. ..... **griseus.**

Dark piceous, thinly clothed with small grayish scales, prothoracic punctures superficial, subconfluent..... **rusticus.**

S. griseus Lec.—Elongate-oval, convex, rufopiceous, scales moderately large, pale ochreous, more dense on the underside than above, those on the prothorax narrower, more elongate and directed transversely; elytra variegated with smaller pale brown scales. Beak feebly tapering, as long as head and prothorax in the male, longer in the female, thinly clothed with piliform scales from base to middle, nearly glabrous beyond in the male, almost entirely glabrous in the female; basal tufts quite distinct; scrobes, when viewed laterally, visible in almost their whole extent. Antennæ slender, inserted a trifle before the middle (♂), or a little more than one-third from the base (♀); basal joint stout, second joint elongate, conspicuously longer than the third. Head finely punctate, thinly squamose. Prothorax scarcely wider than long, a little narrowed in front, broadly rounded on the sides, not evidently constricted in front, punctures moderately large, impressed, distinct, interspaces shining and scarcely concealed by the scales. Scutel distinct. Elytra nearly two-fifths and suddenly wider at the base than the prothorax, oblong, a little more than one-half longer than wide, humeri prominent, distinctly striato-punctate, not concealed by the scales, third interspace wider at the base, with a short line of pale scales, setæ suberect, fine. Prosternum broadly emarginate, postocular lobes not very prominent. Legs long and slender, thighs feebly clavate, tibiæ very slender; claws connate for fully one-third their length. Length 2.5—3.75 mm.: 0.10—0.15 inch. Plate viii, fig. 23*a*.

Hab.—Nebraska, Dakota.

Two males and one female specimen in Mr. Ulke's collection. Differing very much in size, but not otherwise; the female specimen, while undoubtedly belonging here, has the scales entirely unicolorous and about of equal size, another instance of the unreliability of distinguishing species by coloration. Although the second joint of the funicle is distinctly longer than the third, and the claws not connate beyond the middle, I do not entertain any doubt of this being the species described by LeConte as *griseus*. Bears a deceptive appearance to *Desmoris incertus*, but the posterior tibiæ are distinctly unguiculate, the beak straight and the eyes narrowly separated beneath.

S. rusticus n. sp.—Elongate-oval, moderately convex, dark piceous, legs rufous, not very densely clothed with small, oval, grayish scales. Beak straight, rather stout (♂), scarcely tapering, not as long as head and prothorax, punctured and scaly in its basal half, shining beyond, basal tufts not very evident. Antennæ inserted two-fifths from the apex, second joint of funicle one-half longer than the third. Head subglabrous. Prothorax wider than long, narrowed anteriorly, not constricted at the apex, sides broadly, but somewhat irregularly rounded, convergent behind, confusedly and irregularly punctured,

punctures rather superficial, subconfluent, giving the appearance of being corroded. Scutel distinct, scaly. Elytra two-fifths wider at base than the prothorax, and one-half longer than wide, sides nearly straight for one-half their length, then broadly rounded to the apex, striæ quite distinct, not concealed by the scales, punctures remote, interstitial setæ short, suberect, paler than the scales, postocular lobes feeble. Thighs clavate, tibiæ moderately stout, widened at tip, terminal hooks rather small; claws connate nearly to the middle. Length 2.5 mm.; 0.10 inch.

Hab.—Montana.

A single male specimen in Dr. Horn's collection not unlikely *Desmoris sordidus* Lec., but smaller, however, the posterior tibiæ are unguiculate, thorax more densely and finely punctured, without smooth, dorsal line. The eyes are rather a little more widely separated beneath than usual in the *Smicronyx*.

SYNERTHA n. gen.

Based on a few species in which the eyes are contiguous beneath. Beak feebly curved, robust in the male, more slender in the female. Antennæ inserted two-fifths from the apex in the male, a little before the middle in the female. Prothorax narrowed anteriorly and broadly constricted at the apex. Scutel distinct. Elytra elongate, nearly twice as long as wide. Prosternum moderately long in front of the coxæ, broadly emarginate and without antecoxal ridges, postocular lobes obsolete or feebly developed.

The species are narrow, elongate insects, densely clothed with large, broadly oval, imbricate scales and known from the Pacific slope only. The three species known to me are readily distinguished as follows:

Prothorax not wider than long, elytral setæ procumbent, scarcely visible.
- Tarsi slender, fourth joint projecting much more than the length of the preceding joint; claws connate at the base only..... **imbricatus.**
- Tarsi stout, fourth joint scarcely projecting the length of the preceding joint; claws connate two-thirds their length..... **hornii.**

Prothorax wider than long, elytra not much wider at base than the prothorax, setæ suberect, conspicuous..... **wickhami.**

S. imbricatus Casey.—Narrowly oblong, black, legs rufous to piceous, densely clothed with large, broadly oval, overlapping scales, white or pale ochreous on the underside, gray, intermixed in varying proportions with brown, above. Beak in the male stout, robust, very feebly curved, about as long as head and prothorax, densely scaly throughout with the basal tufts prominent, in the female longer than head and prothorax, scaly toward the base, constriction deep; scrobes not rapidly descending, upper margin visible in its whole extent. Antennæ moderate, inserted two-fifths from the apex (♂), or a little before the middle (♀), second joint of funicle longer than the third, outer joints not much wider,

club densely scaly. Head densely scaly. Prothorax about as wide as long, not strongly narrowed anteriorly, broadly but not deeply constricted behind the anterior margin, very feebly rounded on the sides, surface not very densely and rather coarsely punctured, punctures entirely concealed by the scales, a narrow median vitta, lateral margin and a line each side of disc whitish. Elytra two-fifths and rather suddenly wider at the base than the prothorax, nearly twice as long as wide, humeri prominent, rounded, sides straight and parallel for one-half their length then broadly rounded to the apex, striæ fine, punctures distinct, approximate, concealed by the scales, interstitial setæ hair-like, brownish, not evident; pale scales more predominant on the sides. Thighs moderately clavate, tibiæ subparallel, widened at the tip, setulose within, apical hooks, especially the posterior, small; articulating surface of posterior tibiæ obliquely ascending and open externally; tarsi slender, fourth joint much longer than the third, which is moderately bilobed; claws moderate, slender and connate near the base only. Length 2.25—2.75 mm.; 0.09—0.11 inch. Plate vii, fig. 3*c*.

Hab.—California (Mojave, S. Bernardino County), Arizona (Pinal Mountains, Riverside), Wickham.

Twelve specimens are before me. Varies considerably in appearance according to the preponderance of the dark or pale scales; some specimens present an almost uniformly gray appearance without a trace of thoracic vittæ. *S. silaceous* Casey is not distinct from the above; the beak is distinctly longer and more slender in the female than in the male, and the legs present all shades from rufous to pitchy black. The great difference in measurements as given by Casey and my own I cannot account for.

S. hornii n. sp.—Very similar in size and form to the preceding, scales dark brown, mottled with pale. Beak (♂) stout, moderately curved nearer the base, densely scaly, basal tufts prominent, separated from the head by a deep incision; scrobes as in the preceding. Antennæ stout, second joint a little longer than the third, outer joints gradually wider, merging into the club, latter less densely scaly. Prothorax as long as wide, gradually narrowed from the base, not evidently constricted at the apex, very feebly rounded on the sides nearly to the apex, apparently very densely punctured, punctures concealed by the scales, latter dark brown, a whitish vitta on the basal half of the median line, continued as a scutellar spot on the elytra. Elytra one-third and suddenly wider at the base than the prothorax and nearly twice as long as wide, humeri prominent, sides straight, subparallel for one-half their length, then broadly rounded to the apex, striæ fine, concealed by the scales, interstitial setæ small, whitish, inconspicuous, a whitish scutellar spot, paler scales more conspicuous on the sides. Legs rather robust, thighs not strongly clavate, tibiæ stout, subparallel, apical hooks small; tarsi stout, third joint not much wider than the second, fourth joint not slender, projecting scarcely the length of the preceding; claws small, connate beyond the middle. Length 2.75 mm.; 0.11 inch. Plate viii, fig. 25.

Hab.—Arizona.

A single male specimen in my collection. Easily distinguished

from the preceding species aside from coloration, by the stouter antennæ and tarsi, the short fourth joint of the latter and the small connate claws.

S. wickhami n. sp.—Narrowly oblong, black, legs rufous, coxæ, knees and tarsi blackish, densely clothed with large, broadly oval imbricate scales, grayish white, underside a shade darker. Beak less robust, curved, as long as head and prothorax, scaly in its basal half, shining and more finely punctured beyond. Antennæ moderate, inserted two fifths from the apex, second joint of funicle nearly twice the length of the third joint, outer joints not much wider. Head wide, subopaque, thinly squamose. Prothorax distinctly wider than long, narrowed anteriorly, rounded on the sides, broadly and distinctly constricted at the apex. Elytra about one-fourth wider at the base than the prothorax, nearly twice as long as wide, humeri prominent, sides straight, subparallel for one-half their length, then gradually rounded to the apex, striæ entirely concealed by the very dense, scaly vestiture, interstitial setæ suberect, white, squamiform and very conspicuous. Thighs strongly clavate, tibiæ moderate, subparallel, terminal hooks small; tarsi slender, third joint broadly bilobed, fourth projecting much more than the length of the preceding joint; claws small, connate fully one-half their length. Length 2.0 mm.; 0.08 inch.

Hab.—Arizona (Riverside), Wickham.

A small specimen in my collection. Readily distinguished from either of the preceding species by the broader prothorax, the elytra but little wider than the former, the conspicuous elytral setæ and its smaller size.

PROMECOTARSUS Casey.

Beak curved, moderately robust, separated from the head by a fine transverse groove; basal tufts obsolete; scrobes oblique. Antennæ as in *Smicronyx*, club ovoidal, first joint less than one-half its mass. Head spherical; eyes narrowly oval, more widely separated beneath than in *Smicronyx*. Prothorax constricted at the apex, postocular lobes distinct. Scutel very small, scaly. Elytra subcylindrical, not conspicuously wider than the prothorax. Prosternum broadly emarginate, without antecoxal ridges. Legs moderately stout, all the tibiæ unguiculate at the apex; tarsi very long, slender, third joint not broadly bilobed, lobes rather narrowly oval; fourth joint subequal to the preceding three joints; claws moderately long, slender, divergent, connate at base only.

The species are cylindrical in form and densely clothed with large, imbricate scales, intermixed with suberect setæ and readily distinguished from *Smicronyx* by their general habitus and the great length of the fourth tarsal joint.

As I have nothing to add to the three species described by Casey, I shall merely give here the synoptic table of species as given by that author, referring the student for full descriptions to the original.

Capt. Casey separates the species as follows :

Ungues widely divergent; prothorax very nearly as long as wide, ocular lobes not prominent.

Prothorax abruptly, deeply constricted near the apex, the latter but slightly narrower than the base..... **maritimus.**

Prothorax gradually more strongly narrowed and broadly, feebly constricted toward apex, the latter scarcely more than two-thirds as wide as the base. **densus.**

Ungues subparallel; prothorax much wider than long, with the ocular lobes prominent..... **fumatus.**

P. maritimus Casey. *Hab.*—California, San Diego.

P. densus Casey. *Hab.*—Nebraska (Casey), Kansas (Ulke).

P. fumatus Casey. *Hab.*—Montana, Dakota (Ulke).

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PACHYPHANES n. g.

1. P. discoideus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 169.
2. P. carus n. sp.
3. P. corpulentus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 170.
4. P. centralis n. sp.
5. P. lateralis n. sp.

⁂

6. P. lineolatus Casey, Coleop. Notices, iv, p. 385.
7. P. triangularis n. sp.
8. P. amœnus Say, *Tychius amœnus*, Curcul. 26, ed. Lec. i, p. 291; Gyll. Sch. Curc. iii, p. 419.

DESMORIS Lec.

1. D. scapalis Lec., Proc. Amer. Philos. Soc. vol. xv, p. 168.
2. D. compar n. sp.
3. D. obesus n. sp.
4. D. montanus n. sp.
5. D. pervisus n. sp.
6. D. incertus n. sp.
7. D. floridanus n. sp.
8. D. constrictus Say, *Rhynchænus constrictus* Say, Journal Ac. Nat. Sci. Phila. iii, 313; ed. Lec. ii, p. 176; *Balaninus constr.* Say, Curc. 26; ed. Lec. i, p. 294; Sch. Curc. vii, p. 263; *Erirh. constr.* Gyll. Sch. Curc. iii. p. 386.
9. D. sordidus Lec., *Smicronyx sord.* Proc. Amer. Philos. Soc. vol. xv, p. 173.
10. D. humilis n. sp.

11. D. fulvus Lec., *Smicronyx fulv.* Proc. Amer. Philos. Soc. vol. xv, p. 172.
12. D. flavicans Lec., ibid. *Smicronyx flav.* ibid. p. 171.

SMICRONYX Sch.

Subgenus SMICRONYX.

♀

1. S. squalidus Casey, Coleop. Notices, iv, p. 407.
2. S. setulosus n. sp.
3. S. cinerascens n. sp.
4. S. morio n. sp.
5. S. tesselatus n. sp.
6. S. ovipennis Lec., Proc. Amer. Philos. Soc. vol. xv, p. 170.
7. S. impressirostris n. sp.

♂♂

8. S. profusus Casey, Coleop. Notices, iv, p. 389.
9. S. intricatus Casey, ibid. p. 390.
10. S. mucidus n. sp.
11. S. perplexus n. sp.
12. S. tardus n. sp.
13. S. picipes n. sp.
14. S. rhodopus n. sp.
15. S. resplendens n. sp.
16. S. pusio Lec., Proc. Amer. Philos. Soc. vol. xv, p. 171.

♀♂

17. S. cognatus n. sp.
18. S. spretus n. sp.
19. S. cinereus Motsch., Bull. Mosc. 1845, ii, 376.
20. S. scalator n. sp.
21. S. lepidus n. sp.
22. S. quadrifer Casey, Coleop. Notices, iv, p. 388.
23. S. instabilis Casey, ibid. p. 403.
24. S. nubilus n. sp.
25. S. posticus n. sp.
26. S. seriatus Lec., Proc. Amer. Philos. Soc. xv, p. 172.
27. S. fraterculus n. sp.
28. S. languidulus n. sp.
29. S. tychioides Lec., Proc. Amer. Philos. Soc. xv, p. 171.
30. S. atratus n. sp.
31. S. congestus Casey, Coleop. Notices, iv, p. 401.
32. S. sculpticollis Casey, ibid. p. 403.
33. S. apionides Casey, ibid. p. 405.

Subgenus PSEUDROMICRONYX.

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34. S. nebulosus n. sp.
35. S. ornatipennis n. sp.
36. S. fallax n. sp.

37. S. vestitus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 172.
38. S. commixtus n. sp.

39. S. perfidus n. sp.
40. S. maculatus n. sp.
41. S. columbianus n. sp.
42. S. californicus n. sp.
43. S. corniculatus Fabr., *Tychius corn.* Sch. Curc. vii, 2d p. 319.
44. S. launginosus n. sp.
45. S. spurcus Casey, Coleop. Notices, p. 393.
46. S. abnormis n. sp.
47. S. vitiasus n. sp.
48. S. rufulus n. sp.

49. S. obtectus Lec., Proc Amer. Philos. Soc. vol. xv, p. 171.
50. S. parcus n. sp.
51. S. albosquamosus n. sp.
52. S. lutulentus n. sp.

53. S. griseus Lec., Proc. Amer. Philos. Soc. vol. xv, p. 171.
54. S. rusticus n. sp.

SYNERTHA n. g.

1. S. imbricata Casey, *Smicronyx imb.* Coleop. Notices, p. 391.
2. S. hornii n. sp.
3. S. wickhami n. sp.

PROMECOTARSUS Casey.

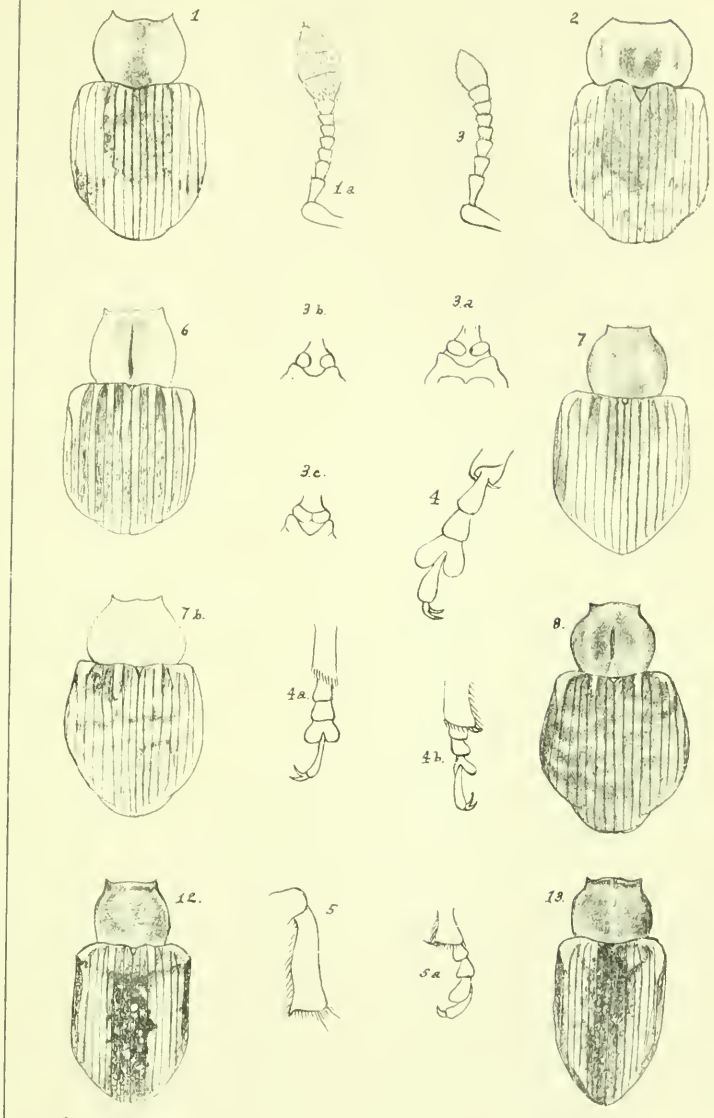
1. P. maritimus Casey, Coleop. Notices, iv, p. 409.
2. P. densus Casey, ibid. p. 410.
3. P. fumatus Casey, ibid. p. 410.

Unrecognized Species.

1. Smicronyx squamulatus Lec., Proc. Amer. Philos. Soc. xv, p. 173 (probably a variety of *corniculatus* Fabr.).
2. S. sparsus Casey, Coleop. Notices, iv, p. 394.
3. S. pleuralis Casey, ibid. p. 395.
4. S. connivens Casey, ibid. p. 398.
5. S. fiducialis Casey, ibid. p. 399.
6. S. sagittatus Casey, ibid. p. 402.
7. S. perpusillus Casey, ibid. p. 405.
8. S. defricans Casey, ibid. p. 406.
9. S. gibbirostris Casey, ibid. p. 407.

EXPLANATION OF PLATES VII AND VIII.

Fig. 1.—*Pachyphanes discoideus;* 1*a*, antenna of same.
" 2.—*Pachyphanes carus.*
" 3.—Antenna of *Smicronyx profusus;* 3*a*, underside of head of the same; 3*b*, underside of head of *Desmoris constrictus;* 3*c*, underside of head of *Syncrtha imbricata.*
" 4.—Tarsus of *Pachyphanes lineolatus;* 4*a*, tarsus of *Smicronyx obtectus;* 4*b*, tarsus of *Promecotarsus fumatus.*
" 5.—Posterior tibia of *Desmoris scapalis;* 5*a*, same of *Pachyphanes amœnus.*
" 6.—*Pachyphanes lineolatus.*
" 7.—*Pachyphanes triangularis*; 7*a*, tarsus and claws of the same; 7*b*, *Pachyphanes amœnus.*
" 8.—*Smicronyx squalidus.*
" 9.—Anterior tibiæ of *Smicronyx profusus;* 9*a*, claws of the same seen from above; 9*b*, lateral view of same; 9*c*, claws of *Smicronyx vestitus.*
" 10.—Beak of *Smicronyx impressirostris.*
" 11.—Prosternum of *Smicronyx congestus.*
" 12.—*Smicronyx perplexus.*
" 13.—*Smicronyx cognatus.*
" 14.—*Smicronyx spretus.*
" 15.—*Smicronyx scalator.*
" 16.—*Smicronyx quadrifer.*
" 17.—*Smicronyx instabilis.*
" 18.—*Smicronyx posticus.*
" 19.—Beak of *Smicronyx lepidus.*
" 20.—External view of posterior tibiæ of *Smicronyx vestitus;* 20*a*, same of *Smicronyx maculatus.*
" 21.—*Smicronyx ornatipennis.*
" 22.—*Smicronyx columbianus.*
" 23.—Beak of *Smicronyx corniculatus* ♂; 23*a*, beak of *Smicronyx griseus.*
" 24.—Antenna of *Smicronyx obtectus.*
" 25.—*Synertha hornii.*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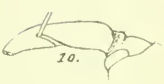
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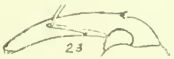
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A PRELIMINARY REVISION OF THE LEPIDOPTEROUS FAMILY NOTODONTIDÆ.

BY B. NEUMOEGEN AND HARRISON G. DYAR, S. B., A. M.

The following revision is continuous with that being published by us in the journal of the New York Entomological Society, including the series of families formerly classed as "Bombyces." Mr. Dyar has prepared the present paper from the material in Mr. Neumoegen's collection, and has recently gone over a large part of the species with Dr. A. S. Packard, to whom our thanks are due.* The manuscript has thus become complete, and we have concluded to present this family separately, thus saving space in the New York journal.

The Notodontidæ belong to the group of specialized frenulum conserves in which the cubitus (median vein) is apparently three branched. Their relations may, perhaps, be best exhibited by a synopsis of groups of the Lepidoptera, which is drawn up on the lines suggested by Prof. J. H. Comstock.†

We have used two systems of nomenclature of the veins of the wings, and present the following table, showing the corresponding name for each vein:

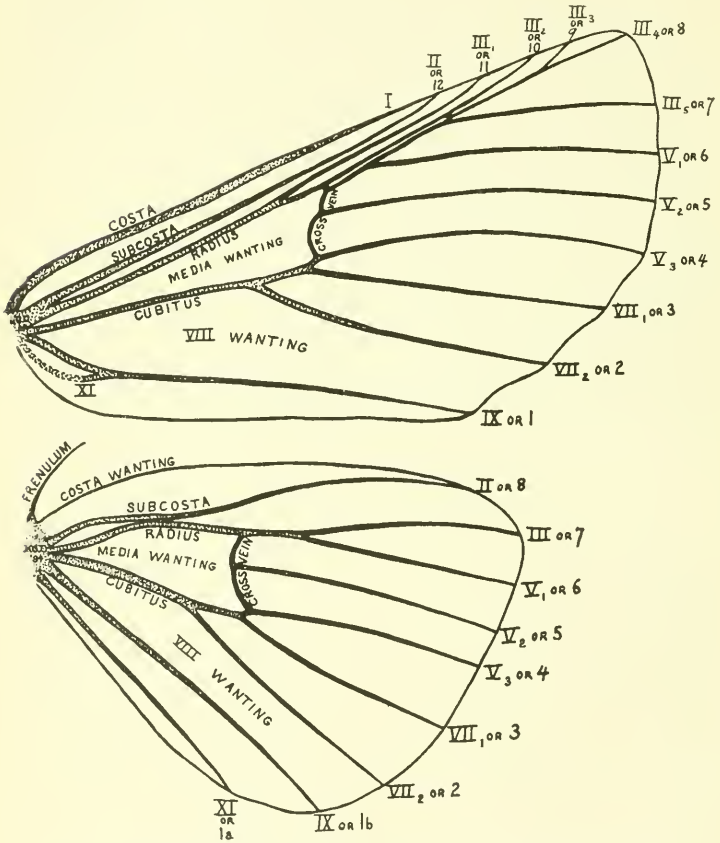
Herrich-Schaeffer System.		Redtenbacher-Comstock System.	
Fore wings.	*Hind wings.*	*Fore wings.*	*Hind wings.*
1, vein 1*a*	1, vein 1*a*	1, vein ix	1, vein xi
2, vein 1*b*	2, vein 2*b*	2, vein viii	2, vein ix
3, median vein	3, vein 1*c*	3, cubitus or vii	3, vein viii
4, vein 2	4, median vein	4, vein vii_2	4, cubitus or vii
5, vein 3	5, vein 2	5, vein vii_1	5, vein vii_2
6, discoidal vein	6, vein 3	6, media or v	6, vein vii_1
7, discal cross-vein	7, discoidal vein	7, cross-vein	7, media or v
8, vein 4	8, discal cross-vein	8, vein v_3	8, cross-vein
9, vein 5	9, vein 4	9, vein v_2	9, vein v_3
10, vein 6	10, vein 5	10, vein vi_1	10, vein v_2
11, subcostal vein	11, vein 6	11, radius or iii	11, vein v_1
12, vein 7	12, subcostal vein, or vein 7	12, vein iii_5	12, radius or iii
13, vein 8	13, vein 8	13, vein iii_4	13, subcosta or ii
14, vein 9		14, vein iii_3	
15, vein 10		15, vein iii_2	
16, vein 11		16, vein iii_1	
17, vein 12		17, subcosta or ii	
18, costal edge.		18, costa or i	

* We would refer to Dr. Packard's monograph for a fuller treatment of the Notodontidæ than is possible in the limits of this paper. We deem ourselves fortunate in having been able to consult with Dr. Packard concerning the synonymy of several of the species, which is the better established by a consensus of opinion. In a few instances, notably in the rank to be assigned to certain local forms, we have felt obliged to differ from Dr. Packard.

† Wilder Quarter Century Book, pp. 37–113 (1893).

Synopsis of the Suborders of the Lepidoptera.

Wings united by a modification of the base of primaries; venation essentially similar in the two wings.....JUGATÆ.
Wings united by a modification of base of secondaries; venation dissimilar in the two wings.....FRENATÆ.



Venation of *Heterocampa lunata* Hy. Edw., illustrating nomenclature of veins.

This division is sharp, not complicated by any intergrading forms. It should be followed directly by a synopsis of families in each suborder, for we have not found it possible to define a series of superfamilies with satisfactory exactness. However, several divisions of the Frenatæ may be recognized, though they are not sharply separated.

Suborder FRENATÆ.

Frenulum usually distinct, single in ♂, usually divided and shorter in ♀; rarely abortive ..... *Frenulum conservers.*

Frenulum absent, or very rudimentary; replaced by an expanded area at base of secondaries, often containing supplementary humeral veins. *Frenulum losers.*

The frenulum conservers are well distinguished in general; but several genera occur in which the frenulum is much reduced or even absent, while in some families included in the frenulum losers there is a rudimentary frenulum. These divisions of the Frenatæ do not represent separate lines of descent, as is the case in the division into suborders since the Lasiocampidæ are separated from their allies in the Arctiid series.

The *Frenulum conservers.*

Primaries with two, or secondaries with three anal veins, usually complete; median often well preserved ..... *Generalized frenulum conservers.*

Primaries with one, and secondaries with not more than two anal veins, except rarely traces of a third ..... *Specialized frenulum conservers.*

These divisions are fairly well marked. The Castniidæ, Cossidæ, Eucleidæ (= Limacodidæ), Pyromorphidæ, Megalopygidæ (= Lagoidæ), Psychidæ and many of the microlepidoptera fulfill the characters of the first division; but this does not appear to be the case with all the microlepidoptera, nor with the Sesiidæ. On the other hand, our species of *Phryganidia* (Dioptidæ) shows a portion of a third anal vein on the hind wings.

The families intended to be included by the term "specialized frenulum conservers" may be separated by the following table:

Secondaries without distinct intercostal cell.
  Cubitus of primaries apparently 4-branched.
    The radius and subcosta of secondaries united for about one-third the length of cell or more.
      These veins completely coalesced to tip ..... EUCHROMIIDÆ.
      Not completely coalesced (apparently so in a few instances). { ARCTIIDÆ. / LITHOSIIDÆ.
    The radius and subcosta free toward base, except in a few instances.
      Vein v_1 arising close to, or in conjunction with radius on secondaries.
        Cubitus of secondaries apparently 4-branched; ♂ antennæ pectinate. { PERICOPIDÆ. / LIPARIDÆ.
        Cubitus of secondaries 3-branched, or 4-branched; antennæ often simple; ocelli often present ..... { NOCTUIDÆ. / AGARISTIDÆ.

Vein v^1 of secondaries arising apparently from discal cross-vein; subcosta running close to radius beyond cell, or even joining it. DREPANIDÆ.

Branches of radius of primaries all free.....THYRIDÆ.

Cubitus of primaries apparently 3-branched.

Veins v_3 and vii_1 arising independently.

Body slender, wings fragile, finely scaled..... { GEOMETRIDÆ. / BREPHIDÆ.

Body larger and robust.

Vein v_1 of secondaries joined to radius before apex of cell. CYMATOPHORIDÆ.

Vein v_1 joined at or beyond end of cell.....NOTODONTIDÆ.

Veins v_3 and vii_1 coalesced at base.....DIOPTIDÆ.

Secondaries with a distinct inter-costal cell; wings usually elongate. SPHINGIDÆ.

Family NOTODONTIDÆ.

Synopsis of Subfamilies and Genera.

Outer margin of primaries excavate below apex; accessory cell on a long stalk. APATELODINÆ.

Outer margin entire, or at most moderately excavate between the terminations of the nervules.

Antennæ of ♂ bipectinated to the tip or simple.....NOTODONTINÆ.

Antennæ of ♂ with distinct pectinations.

Primaries with an accessory cell.

A tufted tooth on internal margin of primaries..... ...**Notodonta.**

Internal margin entire.

Pectinations of antennæ long.

Thorax with large central tuft.....**Nadata.**

Thorax untufted.....**Hyparpax.**

Pectinations moderate or short.

Costa of primaries straight, apex rectangular.....**Symmerista.**

Costa convex, apex rounded.....**Nerice.**

Primaries without accessory cell (rarely a small one in one *Cerura*).

Internal margin entire.

Vein 5 (v_2) of secondaries distinct.....**Cerura.**

Vein 5 (v_2) of secondaries weak or absent.

Tip of abdomen with a brush-like tuft.....**Melalopha.**

Tip of abdomen simple..... { **Gluphisia.** / **Eumelia.**

A tufted tooth on internal margin of primaries.....**Pheosia.**

Antennæ of ♂ simple, without distinct pectinations.

A tufted tooth on internal margin of primaries.

Accessory cell absent..... **Lophodonta.**

Accessory cell present.....**Lophopteryx.**

Internal margin entire.

Accessory cell present.....**Datana.**

Accessory cell absent..... .....**Nystalea.**

Antennæ of ♂ pectinated for basal two-thirds or more, the tips bare.
HETEROCAMPINÆ.
A slight tooth on internal margin of primaries.....**Ianassa.**
Internal margin entire.
Accessory cell present.
Antennæ of ♀ simple.
Antennæ of ♂ pectinated for basal three-fourths or less.
A vertical tuft on the head; black spots above internal angle of primaries.....**Dasylophia.**
Head without a distinct erect tuft.
Terminal abdominal hairs gathered into a more or less conspicuously bifid tuft.....**Schizura.**
Anal tuft not normally bifid.
Accessory cell moderately long.....**Euhyparpax.**
Accessory cell reaching half way to apex of wing.
Wings elongate, more than twice as long as broad.
Heterocampa.
Wings shorter, twice as long as broad, or less.....**Cerura.**
Antennæ of ♂ pectinated nearly to tip.....**Misogada.**
Antennæ of ♀ pectinated.....**Litodonta.**
Accessory cell absent; veins 6–10 stalked (v_1 joint to radius).
Head moderately prominent.....**Macrurocampa.**
Head sunken in the thorax.....**Ellida.**

Subfamily APATELODINÆ.

Genus **Apatelodes** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 353.
1891.—Kirby, Cat. Lep. Het. vol. i, p. 851.

Synopsis of Species.

Outer margin entire below vein 5 (v_2).....**torrefacta.**
Outer margin deeply excavate between the terminations of veins...**angelica.**

A. torrefacta Abbot and Smith.
1797.—Abbot and Smith, Lep. Ins. Ga. vol. ii, pl. 76. *Phalæna.*
var. **floridana** Hy. Edwards.
1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 13.

Ash-gray, clouded with smoky-brown on the fore wings, with transverse anterior and transverse posterior, narrow, waved, deep brown lines, and between them two others of smoky-brown, often faint. Within the transverse anterior line on internal margin is a large, deep brown patch, partially divided by ashen scales on vein 1 (ix). Between veins 6 and 7 (iii_5 and v_1), near the margin, is a triangular or quadrate, white, subhyaline spot. Secondaries dull red, with an outer whitish line, marked on the internal margin by two deep brown dashes. Posterior edge of thorax and tip of abdomen deep brown. Expanse, ♂ 40 mm.; ♀ 50 mm.

Hab.—Atlantic States.

The varietal form *floridana* is more reddish with markings obscured.

A. angelica Grote.

1864.—Grote, Proc. Ent. Soc. Phil. vol. iii, p. 322. *Parathyris.*

hyalinopuncta Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 354. *Apatelodes.*

var. **indistincta** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 13.

Ash-gray, transverse anterior and transverse posterior lines consisting of rows of brown, venular points, the two intermediate lines deep clay-brown, broad, diffused. Between veins 4–5 (v_3–v_2) and 5–6 (v_2–v_1) a quadrate, white, hyaline spot, the lower one smaller. Secondaries pale brownish, with an inner brown, and outer pale obscure line. Thorax gray, with central brown crest. Abdomen thickly dotted with reddish brown dorsally. Expanse, ♂ 42 mm.; ♀ 47 mm.

Hab.—Atlantic States.

The variety *indistincta* is more reddish than the typical form, and the markings are fainter.

Subfamily NOTODONTINÆ.

Genus **Notodonta** Ochsenheimer.

1810.—Ochsenheimer, Schmett. Eur. vol. iii, p. 45.

Peridea Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. Pt. ii, p. 32.

Synopsis of Species.

Size large: external margin of primaries excavate between the veins .**elegans.**

Size smaller; external margin entire.

Fore wing shaded with ocher and brown along internal and external margins.

Thorax dark ash-gray .....**stragula.**

Thorax blackish gray .....**pacifica.**

Fore wing without ocherous brown marks, but with longitudinal black dashes before internal angle.

Primaries yellowish at base and disc .....**georgica.**

Primaries uniform stone-gray .....**tortuosa.**

N. elegans Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. Phil. 1884, p. 285. *Lophopteryx.*

var. **grisea** Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. Phil. 1884, p. 286. *Lophopteryx.*

notaria Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Notodonta.*

Gray, shading into chocolate-brown at base of fore wings. A silvery white mark on vein 1 (anal vein) at base; internal margin between tooth and base ocherous. A series of obscure, subterminal, venular, black dashes, most evident at apex. Secondaries white, with gray patch at internal angle divided by a white line. Thorax gray, abdomen brownish. Expanse, 50 mm.

Hab.—Mountains of New York and New England (Canada), Michigan, Rocky Mountain region.

The var. *grisea* differs in lacking the brown shade at basal part of fore wings.

N. stragula Grote.

1864.—Grote, Proc. Ent. Soc. Phil. vol. iii, p. 93.

race **manitou** Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Jour. N. Y. Ent. Soc. vol. i, p. 35.

Thorax and fore wings slate-gray, replaced by ocherous and brown along internal margin and subterminally. Two deep brown, parallel streaks at base, below median vein and on internal margin respectively. Transverse anterior line waved, ocherous, bordered with brown. A linear discal mark surrounded with pale. Transverse posterior line obsolete, except at internal margin. Subterminal line ocherous, waved. Hind wings white in the male, brownish gray in the female, darker along the outer border. Expanse 40 mm.

Hab.—Atlantic States, westward.

The race *manitou* differs in its much paler colors.

Hab.—Rocky Mountain region.

N. pacifica Behr.

1892.—Behr., Proc. Cal. Acad. Sci. (2) vol. iii, p. 206.

Hab.—Mountains of California and Pacific Northwest.

Closely allied to *stragula*, but darker throughout.

N. georgica Herrich-Schäffer.

1855.—Herrich-Schäffer, Ausser. Schmett. i, f. 384.

Pale gray, with yellowish tinge at base of fore wings, and irrorate with black. T. a. and t. p. lines distinct, black, dentate. A linear black discal dot; tooth black. A series of subterminal, intervenular, black dashes, obsolete centrally; the one between veins 1 and 2 (anal and vii_2) reappears inside t. p. line. Fringe spotted with black. Hind wings white. Expanse 40 mm.

Hab.—Atlantic States, westward.

N. tortuosa Tepper.

1881.—Tepper, Bull. Brook. Ent. Soc. vol. iv, p. 2. *Drynobia.*

Much like *N. georgica*. Primaries and thorax dark stone-gray, slightly tinged with yellowish. T. a. and t. p. lines as in *georgica*, but uniformly black, very faintly whitish bordered; a basal and subapical longitudinal black dash and one near internal angle, discal dot black; white dash at base of wing and on side of thorax. Secondaries whitish, with brownish tinge. Expanse 35 mm.

Hab.—Rocky Mountain region.

Genus **Nadata** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1062.

‖ *Alastor* Boisduval.

1869.—Boisduval, Ann. Ent. Soc. Belg. vol. xii, p. 87.

Synopsis of Forms.

Color buff, orange-buff to red.

General color buff.

Excavations on external margin filled in with white..... **gibbosa.**

Fringe uniformly ocherous..... var. **doubledayi.**

Color deep orange-red..... race **rubripennis.**

Color straw-yellow.

Wings without black shades..... race **oregonensis.**

A black shade at end of cell..... var. **behrensii.**

N. gibbosa Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 82. *Phalæna.*

var. **doubledayi** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 356. *Nadata.*

race **rubripennis** Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Jour. N. Y. Ent. Soc. vol. i, p. 34.

race **oregonensis** Butler.

1881.—Butler, Ann. Nat. Hist. (5) vol. viii, p. 317.

var. **behrensii** Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 49.

Buff, orange tinted, sometimes irrorate with brown scales. T. a. line curved, t. p. line straight, oblique, narrow, deep brown, faintly edged with whitish. Two rounded, white, superposed, discal spots, preceded by a clear buff space. Secondaries paler toward the costal edge.

Hab.—Atlantic States, westward.

The race *rubripennis* differs in the deep orange-red coloration.

Hab.—Rocky Mountain region.

The race *oregonensis* differs in its paler color.

Hab.—California and the Pacific Northwest.

Genus **Hyparpax** Hübner.

1824.—Hübner, Samml. ex. Schmett. ii.

Sangata Walker.

1860.—Walker, Cat. Brit. Mus. Pt. xx, p. 265.

Synopsis of Species.

Median space clear yellow ..... **aurora.**

Median space irrorate, or covered by reddish scales.

Fore wing pink, with only a line of yellow..... **venus.**

Fore wing pale dull ocherous with lines and irrorations of brownish red. **perophoroides.**

H. aurora Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 87. *Phalæna.*

rosea Walker.

1860.—Walker, Cat. Brit. Mus. Pt. xx, p. 265. *Sangata.*

venusta Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 574. *Dryocampa.*

Pale yellow, shaded with pink. T. a. line bent at right angles on median vein; t. p. straight, oblique, a linear discal mark, all pink. Basal and terminal spaces and costa largely overspread with pink. Secondaries white. Expanse 30 mm.

Hab.—Atlantic States from New York to Florida.

H. venus Neumoegen.

1892.—Neumoegen, Can. Ent. vol. xxiv, p. 226.

Thorax and primaries dark pinkish red, darker than *aurora*. T. p. line straight, narrow, yellow; faint trace of angulated t. a. line. Secondaries white,

tinged with pink outwardly and on fringe. Abdomen pale clay-yellow, with the tip pink. Expanse 35 mm.

Hab.—Colorado.

H. perophoroides Strecker.

1877.—Strecker, Proc. Acad. Nat. Sci. Phil. 1876, p. 152. *Cosmia. aurostriata* Graef.

1888.—Graef, Ent. Amer. vol. iv, p. 58. *Hyparpax.*

var. **tyria** Slosson.

1894.—Slosson, Ent. News vol. v, p. 198.

Very pale ocherous, all the margins of fore wing deep brownish red. Wing evenly irrorate; lines as in *aurora*, narrow, even, the discal streak sometimes united with the angle of t. a. line. Secondaries white, the outer third tinted dark red. Expanse 30 mm.

Hab.—Florida.

The variety has the wings heavily irrorate.

Genus **Symmerista** Hübner.

1822?—Hübner, Verz. bek. Schmett. p. 248.

Edema Walker.

1855—Walker, Cat. Brit. Mus. Pt. v, p. 1028.

Synopsis of Species.

A white costal edging ..... **albifrons.**
No white edging ..... **packardii.**

S. albifrons Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol ii, pl. 8. *Phalæna.*

var. **albicosta** Hübner.

1804?—Hübner, Eur. Schmett. Noct. f. 440. *Noctua.*

Ash-gray, shaded with brownish centrally on fore wings. The white costal mark on outer half of wing is expanded into a rounded projection beyond the linear discal dot; lines strigose, confused; a subterminal series of transverse dashes. Secondaries pale gray. The head, collar and central part of thorax, are pale ligneous brown, the whole patch bordered with black. Expanse 30 mm.

The var. *albicosta* differs in having the projection from the costal band tooth-like instead of rounded.

Hab.—Atlantic States, westward.

S. packardii Morrison.

1875.—Morrison, Ann. Lyc. Nat. Hist. N. Y. vol. xi, p. 92. *Edema.*

Brownish cinereous, as in *albifrons*. Costal mark indicated by a pale shade T. p. line and t. a. line black, geminate, waved. Subterminal row of dashes and discal spot as in *albifrons*. Expanse 31 mm.

Hab.—Texas.

Genus **Nerice** Walker.

1855.—Walker, Cat. Brit. Mus. vol. v, p. 1076.

N. bidentata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1076.

Thorax silver-gray, with a square, deep brown patch on the anterior part and head. Fore wings silver-gray along internal margin, the costal half brown, shading into deep brown where it joins the gray, and produced downwards in two teeth at the location of the t. a. and t. p. lines. The t. p. line is indicated on costal margin, and there is an oblique brown dash on the outer margin crossing vein 5. Secondaries brownish gray. Expanse 35 mm.

Hab.—Atlantic States.

Genus **Cerura** Schrank.

1802.—Schrank, Fauna Boica ii (2), p. 155.
Andria Hübner.
1810?—Hübner, Tent. p. 1.
Harpyia Ochsenheimer.
1810.—Ochsenheimer, Schmett. Eur. vol. iii, p. 19.
Pania Dalman.
1823.—Dalman, Anal. Ent. p. 92.
Dicranura Boisduval.
1829.—Boisduval, Ind. Meth. p. 54.

Synopsis of Species.

Primaries crossed by about eight angularly undulate black lines.
Secondaries black ..... **multiscripta.**
Secondaries white ..... **scitiscripta.**
Primaries crossed at basal third by a broad gray band, sometimes absent.
One or more transverse, dentate lines on discal area before the subterminal shade.
Transverse band gray, pulverulent, bordered by black and orange scales.
Fore wings pale cinereous ..... **occidentalis.**
Fore wings white.
Transverse band broad ..... **scolopendrina.**
Transverse band narrow or broken ..... var. **albicoma.**
Band even blackish, without distinct borders ..... **modesta.**
A double row of venular dots forming an ellipse, sometimes obsoletely connected ..... **borealis.**
A single row of venular dots preceded by a rigid shade line, or discal area immaculate.
Fore wings dark cinereous ..... **cinerea.**
Fore wings pale cinereous ..... var. **cinereoides.**
Fore wings nearly white.
Transverse gray band distinct ..... var. **placida.**
This band very obscure or absent ..... var. **nivea.**

C. multiscripta Riley.

1875. Riley, Trans. St. Louis Acad. vol. iii, p. 241.

White; thorax faintly greenish, hind wings blackish. Posterior edge of collar and two transverse rows of dots on thorax black; abdomen banded with blackish above. Wings crossed by eight narrow, dentate, black lines, with a sea-green shade between the lines 2 and 3 and 7 and 8, the latter on costal half. A terminal row of black dots. Expanse, ♂ 25 mm.; ♀ 30 mm.

Hab.—Atlantic States, westward.

C. scitiscripta Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 408.

candida Lintner.

1878.—Lintner, Rept. Mus. N. Y. xxx, p. 199.

Shining white, marked like *multiscripta*, but without greenish shades. T. a. band absent, or partly present, composed of about four irregular ringlets; discal spot absent, or a ringlet. T. p. band of two or three dentate black lines with black mark at costa and internal angle. Black dots at base of fringe, varying in size. Secondaries white, or shaded with brownish along the veins. Expanse 30—40 mm.

Hab.—Texas, Kansas.

C. occidentalis Lintner.

1878.—Lintner, Rep. Mus. N. Y. xxx, p. 194.

Very pale cinereous; t. a. band edged by darker scales. The basal dots and median line distinct. T. p. line dentate, with its costal band present. Terminal dots large.

Hab.—Atlantic States.

C. scolopendrina Boisduval.

1870.—Boisduval, Ann. Soc. Ent. Belg. vol. xii, p. 86. *Dicranura.*

aquilonaris Lintner.

1878.—Lintner, Rep. N. Y. Mus. xxx, p. 195. *Cerura.*

var. **albicoma** Strecker.

1885.—Strecker, Proc. Acad. Nat. Sci. 1884, p. 284.

White, marked much as *occidentalis*, but the basal dots less distinct. T. a. band defined by black lines and orange scales, varying much in width. Secondaries white with terminal and discal dots, and often traces of a mesial band.

Hab.—Canada, Rocky Mountains, California and the Pacific Northwest.

C. modesta Hudson.

1891.—Hudson, Can. Ent. vol. xxiii, p. 197.

Very pale cinereous, all the dots reduced. T a. band and subapical bands broad, uniform, almost bluish black. All the marks more smooth and smoky than in *occidentalis*, and the fine lines and dots indistinct.

Hab.—Northern Atlantic States.

C. borealis Guérin.

1829.—Guérin, Icon. r. anim. pl. 88, f. 5. *Dicranura.*

White, centre of thorax black, and abdomen black banded. Basal and terminal dots distinct. T. a. band very broad, black, edged with black lines and orange scales. T. p. costal shades runs narrowly across the wing; central dentate line between the bands broken up into distinct dots which form a regular ellipse. Hind wings smoky outwardly with terminal and discal dots.

Hab.—Atlantic States.

C. cinerea Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 407.

var. **cinereoides** Dyar.

1890.—Dyar, Can. Ent. vol. xxii, p. 253.

var. **placida** Dyar.

1892.—Dyar, Psyche vol. vi, p. 291.

var. **nivea** Neumoegen.

1891.—Neumoegen, Can. Ent. vol. xxiii, p. 124. *Heterocampa.*

1893.—Dyar, Ent. News vol. iv, p. 35. *Cerura.*

paradoxa Behr.

1885.—Behr., Bull. Cal. Acad. Sci. vol. i, p. 64 (no desc.).

1892.—Dyar, Psyche vol. vi, p. 291.

meridionalis Dyar.

1892.—Dyar, Psyche vol. vi, p. 291.

1893.—Dyar, Ent. News vol. iv, p. 35.

Dark cinereous to white, the broad, doubly concave t. a. band and subapical t. p. band dark, or in the pale forms pale gray, or even absent or represented by scattered black scales. Both bands edged with orange scales; a median shade line and venular row of dots preceding the t. p. band. A curved row of dots on the veins before t. a. band, and one on median vein (cubitus) at base. Terminal dots variable in size. Expanse 37—45 mm.

Hab.—North America, the dark forms in the Atlantic States, the pale form in California, and the white in the Rocky Mountain region.

Genus **Melalopha** Hübner.

1810.—Hübner, Tent. p. 1.

Ichthyura Hübner.

1822?—Hübner, Verz. bek. Schmett. p. 162.

Clostera Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust vol. ii, p. 12.

Synopsis of Species.

Lines on primaries not anastamosing, free.

Size large, with a distinct, large, brown, apical shade..... **albostigma.**

Size smaller, apical region not distinctly discolored.

Wing uniform in tint..... **alethe.**

Wing shaded with darker blotches.

Pale, the blotches contrasting..... **brucei.**

Dark, more uniformly obscured..... **multinoma.**

Lines anastamosing, the second joining the third.

Lines uneven, the basal toothed.

Subapical patch pale, yellowish, the s. t. dots preceded by streaks. **strigosa.**

Patch yellowish to rusty brown, without streaks.

Size moderate; thoracic mark present..... **apicalis.**

Larger; no thoracic mark..... **inornata.**

Lines nearly even, the basal one dislocated, but not toothed.

Fourth line white on costa..... **inclusa.**

Fourth line not distinctly white..... **jocosa.**

M. albosigma Fitch.

1859.—Fitch, Rep. Ins. N. Y. v. p. 64. *Clostera.*

var. **specifica** Dyar.

1892.—Dyar, Can. Ent. vol. xxiv, p. 180. *Ichthyura.*

Deep smoky brown, the apical shade deep purplish brown, sharply limited internally by the white sigmoid bend of the fourth line, and becoming velvety black at this point; first and third lines free and nearly parallel, paler than the wing, not well defined. A s. t. row of diffuse dots. Thoracic patch velvety brown. Expanse 30 mm.

Hab.—Atlantic States northward and westward to Pacific Northwest.

The variety *specifica* is paler throughout.

Hab.—Rocky Mountain region to New Mexico.

M. alethe Neumoegen and Dyar.

1893.—Neumoegen and Dyar, Can. Ent. vol. xxv, p. 122.

Uniformly dark brown, a darker shade on costa before apex. Lines very narrow, yellowish, pulverulent, the fourth white on costa. S. t. dots distinct on a uniformly colored ground, straight. Expanse 30 mm.

Hab.—California.

M. brucei Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Ichthyura.*

Pale ash gray, the lines faintly yellowish. A deep smoky brown shade obtains over the space between the third and fourth lines, and also subapically; fourth line widened and white on costa, the rusty patch outside of it very obscure. S. t. waved row of dots very distinct. Secondaries darker than fore wings and strongly contrasting. Expanse, 22 mm.

Hab.—Northern Atlantic States to the Rocky Mountains.

M. multnoma Dyar.

1892.—Dyar, Can. Ent. vol. xxiv, p. 179. *Ichthyura*

Deep smoky brown with a purplish tint, the lines yellowish. The fourth line very indistinctly widened on costa. Subapical patch rusty-red, distinct, triangular. S. t. dots very obscure. Secondaries concolorous with fore wings.

Hab.—The Pacific Northwest.

M. strigosa Grote.

1882.—Grote, Bull. U. S. Geol. Surv. vol. vi, p. 582. *Ichthyura.*

race **luculenta** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 10. *Ichthyura.*

Yellowish gray, shaded and blotched with olive-brown. Lines as in *apicalis*, but even more waved. A yellowish shade at base and subapically, irrorate with rusty-brown; more or less distinct longitudinal lines of smoky-black precede the s. t. dots, the one between veins 4–5 (v_3-v_2) most distinct. Thoracic patch faint, clouded.

Hab.—Northern Atlantic States.

The race *luculenta* is paler, and lacks the brown thoracic mark.

Hab.—Westward.

M. apicalis Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1058. *Ichthyura.*
vau Fitch.

1859.—Fitch, Rep. Ins. N. Y. v, p. 65. *Clostera.*
indentata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 352. *Ichthyura.*
ornata Grote and Robinson.

1868.—Grote and Robinson, Trans. Amer. Ent. Soc. vol. ii, p. 91. *Ichthyura.*
incarcerata Boisduval.

1868.—Boisduval, Ann. Soc. Ent. Belg. vol. xii, p. 86. *Clostera.*

race **astoriæ** Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 11. *Ichthyura.*

var. **bifiria** Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 167. *Ichthyura.*

Sordid white to ash-gray, the lines whitish. The second meets third at about median vein, while the fourth is undulate, widened and white at costa. A s. t. row of black dots preceded by a lead-colored shade centrally. An obscure lead-colored discal dot. The apical portion of the wing as far as vein 3 (vii_1) more or less overspread with ocherous or rusty brown. Secondaries whitish or gray, often with a mesial line. Thoracic mark deep brown. Expanse 25 mm.

Hab.—Atlantic States northward and westward, California and the Pacific Northwest.

The very pale form *astoriæ* is found on the Pacific coast in Oregon, and a form very similar to it occurs in the central region from the Rocky Mountains westward. In the Sierras examples occur of a fine purplish tint constituting the var. *bifiria.*

M. inornata Neumoegen.

1882.—Neumoegen, Papilio vol. ii, p. 134. *Ichthyura.*

1893.—Packard, Ent. News vol. iv, p. 78.

Hab.—Southwestern United States to Mexico.

Closely allied to *M. apicalis*, from which it does not differ in markings. It is, however, larger and paler, more suffused with reddish, and lacks the dark streak on head and thorax.

M. inclusa Hübner.

1825.—Hübner, Zutr. ex. Schmett. vol. iii, p. 36. *Ichthyura.*
americana Harris.

1841.—Harris, Rep. Ins. Mass. p. 314. *Clostera.*

var. **inversa** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 352. *Ichthyura.*
palla French.

1882.—French, Can. Ent. vol. xiv, p. 33. *Ichthyura.*

Pale gray, irrorate with brown. Lines pale, quite straight, the outer white on costa. S. t. dots moderately distinct. Subapical patch ocherous or rusty-brown, the apical and central parts of the wing shaded with olivaceous brown. Secondaries brownish gray, with an irregular mesial line. The variety *inversa* is darker, usually smaller, with the subapical patch more obscured.

Hab.—Atlantic States westward.

M. jocosa Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 10. *Ichthyura.*

1893.—Packard, Ent. News vol. iv, p. 79.

"Brownish fawn-color," marked as in *inclusa*, but fainter and without white on the fourth line at costa.

Hab.—Florida.

[This may prove to be a varietal form of *inclusa*, as suggested by Dr. Packard.]

Genus **Gluphisia** Boisduval.

1829.—Boisduval, Ind. Meth. p. 56.

Synopsis of Species.

With a yellow (or black) central band on primaries more or less distinct.
Markings distinct.....**septentrionalis.**
Markings confused and irrorate.....**formosa.**
Pale, with no distinct yellowish markings.....**albofascia.**

G. septentrionalis Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1038.
clandestina Walker.

1861.—Walker, Can. Nat. and Geol. vol. vi, p. 36. *Dasychira.*
trilineata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 355. *Gluphisia.*

race **ridenda** Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.

race **quinquelinea** Dyar.

1892.—Dyar, Ent. News vol. iii, p. 158.

Dark gray; basal t. a. and t. p. lines black, waved. Basal and median spaces sordid ocherous in ♂, overspread with metallic black scales in ♀. Secondaries dark gray. Expanse 25 mm.

Hab.—Atlantic States westward.

The race *ridenda* is much paler throughout.

Hab.—Rocky Mountains westward.

The race *quinquelinea* is dark, the ochreous markings obsolete, and middle band evident between t. a. and t. p. lines.

Hab.—Pacific Northwest.

G. formosa Hy. Edwards.

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.

Marked as in *trilineata*. The marks are confused and largely reduced to irrorations, while the color is pale. Base and median space shaded with yellowish. Expanse 25 mm.

Hab.—Central United States to Mexico.

G. albofascia Hy. Edwards.
1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 12.
wrightii Hy. Edwards.
1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 11.
var. **rupta** Hy. Edwards.
1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 12.

Ground color sordid white, the black marks, therefore, more contrasted. Base and median space faintly yellowish ocher; marks variable, basal t. a. and s. t. lines in black, pulverulent, sometimes partly lost. Between these bands are heavy black, transverse, pulverulent shades of variable distinctness. Secondaries white powdered with black. Expanse 30 mm.

Hab.—Utah to Southern California.

Genus **Eumelia** Neumoegen.

1893.—Neumoegen, Can. Ent. vol. xxv, p. 25.
|| *Melia* Neumoegen.
1892.—Neumoegen, Can. Ent. vol. xxiv, p. 225.

Synopsis of Species.

A yellow angular discal dot.....**severa.**
No discal dot.....**lintneri.**

E. severa Hy. Edwards.
1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 167. *Gluphisia.*
var. **danbyi** Neumoegen.
1892.—Neumoegen, Can. Ent. vol. xxiv, p. 225. *Melia.*
race **avimacula** Hudson.
1891.—Hudson, Ent. News vol. ii, p. 165. *Gluphisia.*
var. **slossonii** Packard.
1893.—Dyar, Ent. News vol. iv, p. 35. *Ceruridia.*
1893.—Packard, Psyche vol. vi, p. 502.

Blackish gray, basal line faint, t. a. line black, t. p. line fainter or obsolete. A median shade more or less distinct. S. t. line of confluent spots; an ocherous yellow shade at base, in lower half of median space and sometimes also bordering s. t. line. A yellow point on median vein at base, and an angular yellow discal mark. In some specimens the yellow markings become chestnut-brown. The species is variable. Expanse 35 mm.

Hab.—Mountains of California northward, where it runs into the variety *danbyi*, in which the markings are obscured.

The race *avimacula* lacks the yellow shades at s. t. line, the color is lighter, and the t. a. line less dentate on the veins.

Hab.—Northern New York and New England.

The variety *slossonii* has the yellow shading replaced by black.

Hab.—Northern New York.

E. lintneri Grote.
1877.—Grote, Can. Ent. vol. ix, p. 85. *Dasychira.*
1891.—Dyar, Can. Ent. vol. xxiii, p. 159. *Gluphisia.*

Pale gray, irrorate with black; marked as in *E. severa*, but no basal yellow dot nor discal mark, while the lines are more obscure and the median yellowish shade spreads upward.

Hab.—Northern New York.

Genus **Pheosia** Hübner.

1822?—Hübner, Verz. bek. Schmett. 145.
Leiocampa Stephens.
1828.—Stephens, Ill. Brit. Ent., Haust. vol. ii, p. 24.

Synopsis of Species.

A silvery white line at base of vein 1 (anal vein).
Central part of fore wing white..... **dimidiata.**
Wing centrally smoky-black ..... **portlandia.**
Without silvery-white mark.
Uniform blackish gray, with black discal dot..... **simplaria.**
Primaries brown at base; no discal dot ..... **basitrieus.**

P. dimidiata Herrich-Schäffer.

1856.—Herrich-Schäffer, Samml. Anss. Schmett, vol. i, fig. 515. *Drymonia. rimosa* Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 358. *Pheosia. californica* Stretch.
1872.—Stretch, Zyg. and Bomb. N. A. p. 116.

Thorax brownish gray, the patagia and collar outlined with black; abdomen gray, brownish at base. Wings white, shaded with brownish black at apical third of costa and along internal margin, the latter shade becoming brown toward centre of wing. A white line on vein 1 (anal vein) at base, below which is a dull ocherous patch. T. p. line indicated in white on costa and margin. A black patch at anal angle of hind wings. Expanse 55 mm.

Hab.—Atlantic States westward; California.

P. portlandia Hy. Edwards.

1887.—Hy. Edwards, Ent. Amer. vol. ii, p. 168. *descherei* Neumoegen.
1892.—Neumoegen, Can. Ent. vol. xxiv, p. 227. *Notodonta.*

Deep smoky-black, the abdomen brown-black and hind wings smoky-white. The markings as in *dimidiata*, but the white parts are entirely obscured, except in an oblique subapical patch. The centre of the wing is brown, and the t. p. line is indicated in pale entirely across the wing.

Hab.—Pacific Northwest.

P. simplaria Graef.

1881.—Graef, Bull. Brook. Ent. Soc. vol. iii, p. 95. *Notodonta.*

Blackish gray. T. a. and t. p. lines black, distinct, waved. An oval, linear, discal dot in paler ring. A subterminal line of black dots obscure. Hind wings pale gray with white mesial band and blackish discal dot. Expanse 45 mm.

Hab.—Mountains of New York, and probably also of New England and northward.

P. basitrieus Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1000. *Notodonta.*

Gray, the veins of fore wing outwardly lined with black. T. a. and t. p. lines converging at internal margin, black, slightly dentate, the t. p. line faint. Basal space including a brown streak which shades into ocherous below. A subterminal row of intervennular, blackish, diffuse spots. Hind wings white, shading into gray outwardly, with dentate mesial line. Expanse 45 mm.

Hab.—Northern Atlantic States.

Genus **Lophodonta** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 357.

Synopsis of Species.

Primaries partly shaded with ferruginous brown.....**ferruginea.**
Primaries with scattered ocher-yellow marks.....**angulosa.**

L. ferruginea Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 357.

Dark blackish brown; basal and outer half of median space shaded with ferruginous brown. T. a. and t. p. lines brown defined by white. A large white costal patch at end of cell. Subterminal line whitish. Secondaries whitish centrally in ♂, gray in ♀, the costal margin darker. A pale, broad, mesial, and narrow subterminal band, defined on costa. Abdomen ligneous brown. Expanse 45 mm.

Hab.—Northern Atlantic States.

L. angulosa Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. 83. *Phalæna.*

Dark gray, marked as in *ferruginea*, but without any ferruginous shades. The basal space, t. a. and t. p. lines are marked with brownish ocher, while the costal patch is more obscure than in *ferruginea.*

Hab.—Atlantic States westward.

Genus **Lophopteryx** Stephens.

1828.—Stephens, Ill. Brit. Ent., Haust. vol. ii, p. 26.

L. capucina Linnaeus.

1758.—Linnaeus, Syst. Nat. i, p. 507, N. 55. *Bombyx.*
camelina Linnaeus.
1758.—Linnaeus, Syst. Nat. i, p. 507, N. 56. *Bombyx.*
americana Harvey.
1877.—Harvey, Can. Ent. vol. ix, p. 95. *Lophopteryx.*

Bright brown; nervules interruptedly marked in very dark brown. T. a. line single, forming two approximate, teeth on cell dentate below median vein. T. p. line double, obliterate, with included paler shade which traverses the wing obliquely, marked on costal region; a series of ante-apical pale dots; a purplish brown s. t. shade. Median space diffused, shaded with purplish brown, more apparently so before outer line and inferiorly where the median lines approximate; a terminal brown line, interrupted on the veins, opposite to the extremities of which the exserted fringe is dark brown. Hind wings ochrey, with concolorous fringes becoming brown toward anal angle; a median pale shade,

which intersects at internal margin, a blackish patch. Beneath, yellowish immaculate, the dots on costa of primaries before apices repeated; fringes brown. Body rust-brown. Expanse 36 mm.

Hab.—Northern Atlantic States westward; Europe; Northern Asia. [We are indebted to Dr. Packard for the recognition of *L. americana* Harvey.]

Genus **Datana** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1060.

Synopsis of Species.

Outer margin of primaries distinctly excavate between the veins.
- Color entirely smoky or blackish brown..... **angusii.**
- Color yellowish brown or paler.
  - Discal spots faint or absent, size medium.
    - Color yellow-brown..... **ministra.**
    - Color testaceous..... **californica.**
  - Discal spots distinct, size large..... **drexelii.**

Outer margin indistinctly excavate, nearly entire in the ♂.
- Color tawny brown or purplish.
  - Tawny brown, discal spots distinct, size large..... **major.**
  - More or less purplish, discal spots indistinct, size medium.
    - Thoracic patch reddish brown.
      - Fore wings dull whitish lilac, more or less covered with cinnamon-brown scales..... **palmii.**
      - Fore wings dark brown with a purplish flush..... **floridana.**
    - Thoracic patch ocherous..... **modesta.**
- Color yellowish buff.
  - Thoracic patch tawny brown..... **perspicua.**
  - Thoracic patch as pale as thorax..... **robusta.**

Outer margin of primaries entire, or a little wavy in the ♀.
- Primaries dark reddish brown, lines and fringe concolorous. **integerrima.**
- Primaries luteous tawny, lines and fringe not concolorous..... **contracta.**

D. angusii Grote and Robinson.

1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 9.

1888.—Bentenmüller, Can. Ent. vol. xx, p. 135.

Deep smoky-brown throughout, costal margin of fore wings and outer edge darker; five blackish, narrow lines across the wing, the two outer ones contiguous; an oblique apical streak; discal dots faint or wanting. Head and two-thirds of thorax covered by a square or constricted, deep chocolate-brown patch.

Hab.—Northern Atlantic States westward.

D. ministra Drury.

1773.—Drury, Ill. Ex. Ent. vol. ii, pl. xiv, f. 3. *Phalæna.*

1888.—Bentenmüller, Can. Ent. vol. xx, p. 16. *Datana.*

Reddish brown, fore wings irrorate with brown scales, costal edge slightly brighter in tone, hind wings paler. The lines as in *angusii*. Thoracic patch deep red-brown, shading into ocherous brown on the head. Expanse 35—45 mm.

Hab.—Atlantic States westward.

D. californica Riley.

1890.—Dyar, Ent. Amer. vol. vi, p. 127.

Like *ministra* and *angusii* in markings, but very light in color, being clay-colored or testaceous.

Hab.—Coast region of California.

D. drexelii Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 25.

1890.—Dyar, Psyche vol. v, p. 418.

Reddish brown, with paler ground color, of the color of *ministra*. The costal third of wing is bright ocherous brown, contrasting. Lines as in the preceding species, but centrally in the cell is a round, deep brown discal dot and another elongate one on the cross-vein. Thoracic patches as in *ministra*, but the hind wings are darker. Expanse 40—50 mm.

Hab.—Northern Atlantic States.

D. major Grote and Robinson.

1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 12.

1890.—Dyar, Psyche vol. v, p. 415.

Dark reddish brown, darker than *ministra* or *drexelii*, and more evenly colored. The costal edge is not distinctly brighter in tone, and the hind wings are concolorous with the fore wings; marked as in *drexelii*. The outer margin is distinctly less scalloped than in any of the preceding species. In the ♂ it is nearly entire. Expanse 40—50 mm.

Hab.—Atlantic States.

D. palmii Beutenmüller.

1890.—Beutenmüller, Psyche vol. v, p. 299.

1890.—Dyar, Ent. Amer. vol. vi, p. 129.

1890.—Dyar, Ent. Amer. vol. vi, p. 181.

Chocolate-brown, the fore wings and posterior portion of thorax heavily overwashed with whitish lilac, leaving the lines and fringe deep brown. The lines have a tendency to become pulverulent and indistinct, so that the third and fourth are often very faint. Secondaries and abdomen pale brown, whitish, the secondaries with a satiny lustre. Thoracic patch deep brown, becoming ocherous on the head. Expanse 35—40 mm.

Hab.—Mountains of New York and Penna., Arkansas (Palm).

D. floridana Graef.

1880.—Graef, Bull. Brook. Ent. Soc. vol. iii, p. 37.

1881.—Roebele, Bull. Brook. Ent. Soc. vol. iv, p. 21.

1893.—Dyar, Psyche vol. vi, p. 573.

Closely allied to *palmii*, but less heavily overwashed with purplish: the lines are consequently more obscure. Secondaries darker.

Hab.—Florida to New York (Doll).

D. modesta Beutenmüller.

1890.—Beutenmüller, Psyche vol. v, p. 299.

Uniform deep brown, with an ocherous tinge like *floridana*, but without purplish tint. Lines obsolete, only the outer discernible, and that faint. Discal

dots almost black, a blackish shade at base and terminally. Secondaries brown, paler at base. Thorax dark brown, darker than the quadrate patch, which is ocherous brown, uniform. Expanse 50 mm.

Hab.—Florida.

D. perspicua Grote and Robinson.

1861.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. iii, p. 489.

1891.—Dyar, Can. Ent. vol. xxiii, p. 82.

Light ocher-yellow, not irrorate, the markings and fringe clear yellowish brown, distinctly contrasted. Lines 1 and 5 distinct, the others more obscure and disappearing costa-wards. Outer discal dot very large and spreading. Hind wings very pale straw color. Thoracic patch ocherous brown. Exp. 40—50 mm.

Hab.—Atlantic States westward to Montana.

D. robusta Strecker.

1878.—Strecker, Lep. Pt. 14, p. 131.

1890.—Dyar, Ent. Amer. vol. vi, p. 131.

Slightly duller yellow than *perspicua*, and heavily irrorate with brown scales. Lines as in *perspicua*, the median (cubitus) and internal (anal) veins marked with brown. Discal dots as in *perspicua*, but sharing in the somewhat grayish tint of the whole wing. Secondaries largely tinged with brown outwardly. Thorax creamy-buff, the patch pale ocherous or slightly brownish, frequently appearing brighter than the thorax. Expanse 45 mm.

Hab.—Texas.

D. integerrima Grote and Robinson.

1886.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 12.

1888.—Bentenmüller, Can. Ent. vol. xx, p. 134.

Dark reddish brown, usually without any purplish tint, slightly ocherous along costa. The lines are distinct and bordered outwardly by conspicuous pale shades. Discal dot obscure, as in *palmii* and *floridana*. Thoracic patch ocherous brown, darker posteriorly. Secondaries pale at base. Expanse 35—40 mm.

Hab.—Atlantic States westward.

D. contracta Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1062.

1890.—Bentenmüller, Ent. News vol. i, p. 141.

Light ocherous, slightly darker on costa of fore wings; irrorations and lines blackish, diffused and scattered, contrasting with the deep brown fringe. Discal dots rounded, moderately distinct, blackish.

Hab.—Atlantic States westward.

Genus **Nystalea** Guenée.

1852.—Guenée, Spec. Gén. Lép., Noct. vol. ii, p. 122.

N. indiana Grote.

1884.—Grote, Papilio vol. iv, p. 7.

Anterior part of thorax with a dull yellowish patch as in *Datana*, bordered by black; the rest gray. Fore wings much elongated; antennæ simple, ciliate, the cilia longer at base, a tuft on each joint at each side. Primaries cinereous,

paler on the disc, distinctly mottled; sub-basal line faint. T. a. and t. p. lines close together, straight, parallel, narrow, blackish brown, equidistant from the indistinct black discal ringlet. On veins 2-3 ($viii_2$-$viii_1$) near base, a black patch; another between veins 3-4 (vi_1-v_3) just outside t. p. line. Subterminal row of small black dots, two in each interspace, and terminal black shaded spots. Secondaries blackish, pale at base. Expanse 40 mm.

Hab.—Florida.

Subfamily HETEROCAMPINÆ.

Genus **Ianassa** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1101.
Xylinodes Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 366.
Phya Druce.
1887.—Druce, Biol. Cent.-Amer., Lep. Het. vol. i, p. 242.

Synopsis of Species.

Yellowish or sordid cinereous..... **lignicolor.**
Bright bluish cinereous..... **coloradensis.**

I. lignicolor Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1101. *Ianassa.*
virgata Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 367. *Xylinodes.*
ligingera Walker.
1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 423. *Exæreta.*

Yellowish ash-gray, shading obscurely into wood color along internal margin. Markings all obscured and transformed into longitudinal strigose shades. A basal longitudinal line and black discal dot are moderately distinct. Abdomen and secondaries whitish, the latter with a gray patch at internal angle. Expanse 35—45 mm.

Hab.—Atlantic States.

I. coloradensis Hy. Edwards.

1885.—Hy. Edwards, Ent. Amer. vol. i, p. 17. *Ianassa.*

Bright ash-gray, not yellowish, shading along internal margin into wood color tinged with red-brown, more contrasting than in *lignicolor.*

Hab.—Colorado.

Genus **Dasylophia** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 362.

Synopsis of Species.

T. p. line on primaries distinct, arcuate, even..... **anguina.**
T. p. line obsolete superiorly; markings streaked longitudinally. **thyatiroides.**

D. anguina Smith and Abbott.

1797.—Smith and Abbott, Lep. Ins. Ga. vol. ii, pl. lxxxiv. *Phalæna.*
cucullifera Herrich-Schäffer.
1855.—Herrich-Schäffer, Samml. Auss. Schmett. vol. i, f. 381. *Drymonia.*
punctata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 420. *Heterocampa. cana* Walker.

1869.—Walker, Char. Lep. Het. p. 17. *Edema.*

var. **punctagorda** Slosson.

1892.—Slosson, Can. Ent. vol. xxiv, p. 139. *Dasylophia.*

Ash-gray, with a large basal flesh-colored patch on primaries in the ♀. Wings shaded with brown, the veins obscurely lined; markings faint. T. p. line distinct centrally, pale, edged with black, even, arcuate. A basal longitudinal streak, which may extend outward, defining the pale median veins (v_3, vii_1 and vii_2). Subterminally, two large, round, black spots between the median nervules. Secondaries pale in ♂, gray in ♀. Expanse 35 mm.

Hab.—Atlantic States.

The variety *punctagorda* is paler with white secondaries.

D. thyatiroides Walker.

1862.—Walker, Trans. Ent. Soc. Lond. (3) vol. i, p. 79. *Heterocampa. interna* Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 363. *Dasylophia. tripartita* Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 419. *Heterocampa. signata* Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxiii, p. 758. *Xylina.*

1891.—Smith, Can. Ent. vol. xxxiii, p. 121. *Dasylophia.*

Brownish, obscured, faintly longitudinally streaked. T. a. line pale, outlined by a black shade, straight, bent inward at internal margin. T. p. line distinct near internal margin, sharply bent outward; two black spots between median nervules contiguous to a pale, brown bordered s. t. line, which becomes bordered inwardly in the interspaces in an indefinite manner subapically. Secondaries gray. Expanse 40 mm.

Hab.—Northern Atlantic States.

Genus **Schizura** Doubleday.

1841.—Doubleday, Ent. vol. i, p. 59. *Oedemasia* Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359. *Cœlodasys* Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 363. *Hatima* Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450.

Synopsis of Species.

Transverse bands largely absent.

Size small (36 mm. or less), the brown shade along internal margin of primaries distinct ..... **concinna.**

Size larger (40 mm. or more), this shade less distinct or absent.

Yellowish cinereous at apex, reddish shade moderately distinct.. **eximia.**

Bright cinereous at apex; shade along internal margin yellowish or absent. **perangulata.**

Transverse bands normally present.
Discal dot surrounded by a light cinereous space.
Scarcely any black shading on primaries.....**ipomœæ.**
Two long black dashes.....var. **telifer.**
Whole middle of wing black to outer margin.....var. **cinereofrons.**
Discal dot on the ground color.
Primaries pale green at extreme base.....**unicornis.**
Without green tints.
Discal dot lunate; size small.
Transverse lines distinct, black, coarsely undulate.....**apicalis.**
Lines faint, reddish, finely undulate.....**nitida.**
Discal dot round; size large.....**leptinoides.**

S. concinna Abbott and Smith.

1797.—Abbott and Smith, Lep. Ins. Ga. vol. ii, pl. 85. *Phalæna.*
semirufescens Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 424. *Edema.*
semirufescens Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450. *Hatima.*
1892.—Smith, Can. Ent. vol. xxiv, p. 135.
salicis Hy. Edwards.
1877.—Hy. Edwards, Proc. Cal. Acad. Sci. vol. vii, p. 121. *Heterocampa.*
riversii Behr.
1890.—Behr, Proc. Cal. Acad. Sci. (2) vol. ii, p. 94. *Dryocampa.*

Apical portion of wing cinereous, centre yellowish in ♂, dull olive-brown in ♀; region along internal margin dark ferruginous brown; markings absent, or very faint, veins blackish. A black basal dash and round discal dot, the latter sometimes absent. Secondaries white in ♂, cinereous gray in ♀, with a gray spot at anal angle. Expanse 33—36 mm.

Hab.—Atlantic States westward; California; Idaho (Packard).

S. eximia Grote.

1881.—Grote, Bull. U. S. Geol. Surv. vol. vi, p. 275. *Oedemasia.*

Thorax gray, patagia tipped with brown. Resembles *concinna*, but is larger and the wings more pointed. The wing is more shaded with gray, less distinctly yellowish, centrally in the ♂, so that the sexes are closely similar. The red shade along internal margin is less distinct, being partly blackish. Transverse maculations absent. Discal dot minute or absent. Secondaries pale grayish in ♂, darker in ♀, with indications of a whitish band and dark spot at anal angle. Expanse 42—50 mm.

Hab.—Northern Atlantic States, Pacific Northwest.

S. perangulata Hy. Edwards.

1882.—Hy. Edwards, Papilio vol. ii, p. 125. *Oedemasia.*

Thorax as in *eximia;* costal half of wing toward apex bright gray, the veins black lined, subapical black dashes present; lower half of wing and base yellowish, slightly marked. Transverse lines obsolescent, the t. a. discernible, blackish, lunulate, pulverulent. T. p. line represented by some reddish marks. A black basal dash; discal dot lunate, followed by a black cloud. Secondaries white, with black spot at internal angle. Rather variable, the wing sometimes quite uniformly colored.

Hab.—Colorado, Utah.

S. ipomœæ Doubleday.

1841.—Doubleday, Ent. vol. i, p. 60.
biguttatus Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 365. *Cœlodasys.*
confusa Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 413. *Drymonia.*
duceus Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 417. *Heterocampa.*
corticea Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 418. *Heterocampa.*
compta Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 418. *Heterocampa.*
nigrosignata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 422. *Heterocampa.*

var. **telifer** Grote.

1880.—Grote, N. Am. Ent. vol. i, p. 99. *Cœlodasys.*

var. **cinereofrons** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 366. *Cœlodasys.*
ustipennis Walker.

1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 421. *Heterocampa.*

Gray along costa; the region along internal and outer margins nearly to apex suffused with reddish. Lines indistinct, pale, indicated by black dots on the veins. Discal mark narrow, lunate, situated in a light cinereous space and surrounded by a black cloud; veins indicated in black. Secondaries white in ♂, dusky at margin, gray in ♀. A black shade may overspread the whole centre of the wing from base to outer margin. Expanse 30–45 mm.

Hab.—Atlantic States westward; Pacific Northwest.

S. unicornis Abbott and Smith.

1797.—Abbott and Smith, Lep. Ins. Ga. vol. ii, pl. 86. *Phalæna.*
edmandsii Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 364. *Cœlodasys.*
humilis Walker.

1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 425. *Edema.*
conspecta Hy. Edwards.

1875.—Hy. Edwards, Proc. Cal. Acad. Sci. vol. v, p. 366. *Heterocampa.*

Purplish cinereous, tinged with sea-green at base and along costa of primaries, frequently with a buff colored, apical patch in the ♂. Discal dot black, linear. Transverse lines faint, blackish, lunulate, the t. p. line succeeded by a reddish shade. A series of subterminal, interspacial dashes, followed by white marks, most distinct between the median venules (v_3–vii). Secondaries whitish in ♂, dark gray in ♀. Expanse 30 mm.

Hab.—Atlantic States; California.

S. apicalis Grote and Robinson.

1866.—Grote and Robinson, Proc. Ent. Soc. Phil. vol. vi, p. 15. *Cœlodasys.*

Purplish ash-gray; discal dot large, black, lunate, followed by a black cloud. T. a. and t. p. lines obscurely geminate, black, coarsely waved, the t. p. curved outward opposite the cell; lower half of wing clouded with brownish; a narrow black basal streak. Veins outwardly slightly black lined. Secondaries white in ♂, with black spot at anal angle, blackish in ♀, with central pale band. Expanse 30 mm.

Hab.—Northern Atlantic States.

S. nitida Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 360. *Oedemasia.*
badia Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 361. *Oedemasia.*
1887.—Henshaw, Bull. 16th U. S. Dep't Agr. p. 43.
significata Walker.
1865.—Walker, Cat. Brit. Mus. vol. xxxii, p. 421. *Heterocampa.*

Pale dull ocherous, cinereous along costa; base and a large patch at internal angle reddish brown. Discal mark black, usually distinct, followed by a black cloud. Lines obscure, reddish brown, interspacially lunate; veins black lined subapically; an apical white patch and a series of subterminal white dashes contiguous to a terminal row of black points. Thorax blackish with a tinge of red. Expanse 30 mm.

Hab.—Atlantic States.

S. leptinoides Grote.

1864.—Grote, Proc. Ent. Soc. Phil. vol. iii, p. 323. *Heterocampa.*
mustelina Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359. *Cecrita.*[*]

Dark cinereous, slightly reddish along internal margin and whitish at apex. Discal dot round, black, minute. Lines obsolescent, blackish, geminate, undulate; veins darker. Secondaries whitish in ♂, dark gray in ♀. Expanse 35—40 mm.

Hab.—Atlantic States westward.

Genus **Euhyparpax** Beutenmüller.

1893.—Beutenmüller, Bull. Am. Mus. Nat. Hist. vol. v, p. 19.

E. rosea Beutenmüller.

1893.—Beutenmüller, Bull. Am. Mus. Nat. Hist. vol. v, p. 19.

Pinkish ocherous, inclining to rose color; a narrow, undulated, darker colored t. p. line with faint, pale, discal spot and dark subterminal spots. Secondaries rose colored, fringe paler. Expanse 40 mm.

Hab.—Colorado.

Genus **Heterocampa** Doubleday.

1841.—Doubleday, Ent. vol. i, p. 55.
Lochmæus Doubleday.
1841.—Doubleday, Ent. vol. i, p. 57.
Tadana Walker.
1855.—Walker, Cat. Brit. Mus. vol. v, p. 990.

Synopsis of Species.

Size large (expanse 40 mm. or more).
Discal streak lunate.
Wings varied with whitish, especially subapically.
With conspicuous greenish gray shades ..... **astarte.**
More uniformly cinereous ..... **obliqua.**
Wings very uniformly dark gray ..... **lunata.**
Wings without distinct white subapical shade, sub-basal field dark. **umbrata.**
Discal mark ovate or reniform ..... **manteo.**
Size small (expanse 35 mm. or less).
Wings greenish or gray, with white subapical shade ..... **subrotata.**
Wings evenly gray, without any white shade ..... **belfragei.**

[*] Dr. Packard has kindly given us this synonymy. But the larva described by Prof. G. H. French (Can. Ent. vol. xviii, p. 92), is not that of *S. leptinoides.*

H. astarte Doubleday.

1841.—Doubleday, Ent. vol. i, p. 57.

varia Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1023.

menas Harris.

1869.—Harris, Ent. Corr. p. 134. *Stauropus.*

chapmanii Grote.*

1881. Grote, Bull. U. S. Geol. Surv. vol. vi, p. 258.

Olivaceous gray, appearing paler than *obliqua;* thorax, basal space and a shade extending from median space subapically, whitish green, clouding the white subapical shade. Lines black, essentially as in *obliqua*, the subapical portion of the subterminal line more consolidated and narrower.

Hab.—Florida.

H. obliqua Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 368.

var. **trouvelotii** Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 369.

brunnea Grote and Robinson.

1867.—Grote and Robinson, Trans. Am. Ent. Soc. vol. i, p. 180.

Dark cinereous; transverse lines obscured, but the wing more or less varied with ochraceous, or ferruginous and white patches. Of the white patches, the most conspicuous is an oblique subapical one. Discal mark black, lunate, often linear. Secondaries white in ♂, smoky outwardly in ♀. In the form *trouvelotii*, the white marks are absent, the t. a. line moderately distinct, and the apical third of wing covered by a deep brown shade. Expanse 45—50 mm.

Hab.—Atlantic States.

H. lunata Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 44.

plumosa Hy. Edwards

1886.—Hy. Edwards, Ent. Amer. vol. ii, p. 14. *Lophodonta.*

dardania Druce.

1887.—Druce, Biol. Cent.-Am. vol. i, p. 237, pl. xxv, f. 4. *Heterocampa.*

Very uniform dark gray, darker in the basal field and sometimes discolored, recalling the ornamentation of *Notodonta*. Transverse lines obsolete. Discal mark black, lunate. Secondaries grayish, especially along costal border. Expanse 40 mm.

Hab.—Colorado to Arizona, Mexico.

H. umbrata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1023.

semiplaga Walker.

1861.—Walker, Can. Nat. and Geol. vol. vi, p. 37.

1882.—Grote, New Check List, p. 19.

1892.—Smith, Can. Ent. vol. xxiv, p. 136.

pulverea Grote and Robinson.

1867.—Grote and Robinson, Trans. Am. Ent. Soc. vol. i, p. 185.

athereo Harris.

1869.—Harris, Ent. Corr. p. 134, note. *Stauropus.*

Thorax pale greenish gray, with a blackish line on collar. Primaries pale olivaceous ashen, shaded with darker greenish gray from the basal line to the

* Dr. Packard writes us: "On seeing Mr. Thaxter's type of *H. chapmanii* I think it must be for the present regarded as distinct from *astarte*." We have no personal knowledge of this form.

lunate discal mark and below median vein out to subterminal line. Transverse lines blackish, geminate, lunulate, not very well defined. Subterminal line distinct, blackish, broad, composed of well fused, diffuse, subtriangular spots, nearly straight. Abdomen in ♀ with dark dorsal tufts. Secondaries dusky, with paler mesial band. Expanse 40—50 mm.

Hab.—Atlantic States.

H. manteo Doubleday.

1841.—Doubleday, Ent. vol. i, p. 58. *Lochmæus.*

cinerascens Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 991. *Tadana.*

subalbicans Grote.

1863.—Grote, Proc. Ent. Soc. Phil. vol. ii, p. 336. *Heterocampa.*

Cinereous gray; secondaries slightly brownish, dark in both sexes. T. a. and t. p. lines blackish, geminate, obscure, filled in with whitish in ♀. Discal spot black, kidney-shaped, sometimes obscure. Subterminal line whitish, faint. A terminal series of black dashes. Expanse 40 mm.

Hab.—Atlantic States.

H. subrotata Harvey.

1874.—Harvey, Bull. Buff. Soc. vol. i, p. 263.

celtiphaga Harvey.

1874.—Harvey, Bull. Buff. Soc. vol. i, p. 263.

superba Hy. Edwards.

1884.—Hy. Edwards, Papilio vol. iv, p. 121.

Bright olivaceous or cinereous; basal line black, distinct; transverse lines geminate, black, including a light brown shade; a semilunar discal streak followed by a pale space reaching t. p. line. Subterminally the wing is whitish, relieving the irregular disconnected subterminal line, which appears as black interspaceal streaks. A narrow terminal line. Expanse 18—34 mm.

Hab.—Southern States to Texas.

H. belfragei Grote.

1879.—Grote, Can. Ent. vol. xi, p. 209.

Uniform ash-gray, faintly brownish; basal line black. T. a. and t. p. lines geminate, obscure, paler centrally. Discal dot lunate, black. Subterminal line transformed into two brown-black, oblique dashes from veins 7–4 (iii_5–v_3) and 4–1 (v_3–ix). Secondaries white; a terminal brown line. Thorax dark gray. Expanse 35 mm.

Hab.—Texas.

Genus **Cecrita** Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 992.

Seirodonta Grote and Robinson.

1868.—Grote and Robinson, List. Lep. N. Am. p. 1.

Synopsis of Species.

Dull greenish; transverse lines purplish brown, geminate, lunulate..**biundata.**
Whitish, clouded with black; transverse lines faint.....**guttivitta.**
Cinereous, with black, geminate, angular, transverse lines.....**bilineata.**

C. biundata Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 1025. *Hetercampa.*

olivatus Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 371. *Lochmæus.*

viridescens Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 416. *Stauropus.*
mollis Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 422. *Heterocampa.*

Greenish cinereous; transverse basal, t. a. and t. p. lines purplish geminate, lunulate, filled in with light brown. Discal mark brown linear; a purplish cloud below it. Subterminal, purplish, intervenular, rounded spots. Secondaries cinereous, with pale mesial line. Expanse 34—40 mm.

Hab.—Atlantic States.

C. guttivitta Walker.

1855.—Walker, Cat. Brit. Mus. Pt. v, p. 992.
albiplaga Walker.
1856.—Walker, Cat. Brit. Mus. Pt. vii, p. 1748.
mucorea Herrich-Schäffer.
1856.—Herrich-Schäffer, Ausser. Schmett. vol. i. f. 514. *Drymonia.*
harrisii Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 365. *Cœlodasys.*
indeterminata Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, Pt. 413. *Drymonia.*
? doubledayi Scudder.
1869.—Scudder, Harris' Ent. Corr. 134, note, sp. 3. *Heterocampa.*

Whitish gray, with an olivaceous tinge; pale toward apices. Discal dot obscure, linear, surrounded by a whitish space; markings very faint or absent, except the blackish subterminal spots, which are very distinct in the ♀. Base of primaries or whole wing more or less clouded with black. Secondaries grayish, darker in ♀. Expanse 40 mm.

Hab.—Atlantic States.

C. bilineata Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 359.
turbida Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 419. *Heterocampa.*
associata Walker
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 426. *Edema.*
ulmi Harris.
1869.—Harris' Ent. Corr. pp. 245, 302. *Notodonta.*

Male light cinereous, tinged with blackish. A black basal dash; t. a. and t. p. lines black, geminate, angulated on the veins. Discal dot black, sublunate, often faint. Subterminal line sinuate, whitish, continuous. Female more evenly colored and less distinctly marked. Expanse 30—40 mm.

Hab.—Atlantic States.

Genus **Misogada** Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 449.

M. cinerea Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 372. *Lochmæus.*
unicolor Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 373. *Lochmæus.*
marina Packard.
1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 373. *Lochmæus.*
sobria Walker.
1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 450. *Misogada.*

Uniform ash-gray or faintly tinged with green; secondaries pale at base. T. p. line represented by a series of blackish venular dots, each succeeded outwardly by white, but these marks may be absent. T. a. and s. t. lines sometimes faintly indicated. Expanse 35—45 mm.

Hab.—Atlantic States westward.

Genus **Litodonta** Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 5.

L. hydromeli Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 5.

var. **fusca** Harvey.

1876.—Harvey, Can. Ent. vol. viii, p. 110.

Whitish cinereous, with a dull green tinge. Transverse basal, t. a. and t. p. lines, black, geminate, sublunulate, sinuate. Discal mark black, lunate. A purplish cloud fading into white subapically. A row of subterminal black spots preceded by orange scales; a narrow terminal line. Secondaries dusky. Expanse 34 mm.

Hab.—Southern States to Texas.

The variety *fusca* lacks the green tint, being cinereous gray.

Genus **Macrurocampa** Dyar.

1893.—Dyar, Ent. News vol. iv, p. 34.

M. marthesia Cramer.

1779.—Cramer, Pap. Exot. vol. iii, pl. 264, fig. B. *Noctua.*

tescila Packard.

1864.—Packard, Proc. Ent. Soc. Phil. vol. iii, p. 370. *Lochmæus.*

turbida Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 407. *Cerura.*

elongata Grote and Robinson.

1867.—Grote and Robinson, Tr. Ent. Soc. Phil. vol. i, p. 184. *Heterocampa.*

Whitish, tinged with gray and pale greenish. T. a. line black, distinct, geminate, angular. Basal space filled in with dark shadings. Beyond this, the wing is pale, the marks obscured. A median blackish band and t. p. line indicated, the latter obscurely geminate, filled in with whitish. A blackish, transverse, discal mark. Subterminal spots shaded, blackish, connected into a band, most distinct in the interspaces between veins 2 and 3 (cell vii_1). Secondaries smoky, with whitish mesial band. Expanse 40 mm.

Hab.—Atlantic States.

Genus **Ellida** Grote.

1876.—Grote, Can. Ent. vol. viii, p. 125.

E. caniplaga Walker.

1856.—Walker, Cat. Brit. Mus. Pt. ix, p. 18. *Cymatophora.*

1893.—Smith, Bull. 44, U. S. N. M. p. 29. *Bombycia.*

transversata Walker.

1865.—Walker, Cat. Brit. Mus. Pt. xxxii, p. 427. *Edema.*

gelida Grote.

1876.—Grote, Can. Ent. vol. viii, p. 125. *Ellida.*

1892.—Smith, Can. Ent. vol. xxiv, p. 135.

Ash-gray, collar blackish. Secondaries and abdomen pale brownish. T. a. line arcuate, broad, black, pulverulent and broken, followed by a more rigid line, which does not quite attain internal margin. Between these are traces of another line; all three very closely approximate. A sublunate black discal dot, surrounded by a white shade. Outer half of wing faintly clouded, showing traces of t. p. and s. t. lines, but very faintly. Expanse 30 mm.

Hab.—Northern Atlantic States.

SOME NEW AMERICAN ACARINA.

BY NATHAN BANKS.

The mites of the United States I would arrange in eight super-families, viz.: Desmodecoidea, Psoroptoidea, Hydrachnoidea, Ixodoidea, Gamasoidea, Oribatoidea, Trombidoidea and Eupodoidea. In this article I shall treat of some forms belonging to the last two super-families which I have observed in the United States, principally from Long Island, N. Y.

The study of mites is very difficult, and the classification is not yet in a satisfactory condition. We have, except one or two small papers, no works on American mites that are worthy of mention. Quite a number of species have been described, here and there, by entomologists, who, by their descriptions and generic references, exhibited their ignorance of the subject. The best European work for classification, and within reach of all, is Canestrini's "Prospetto dell'Acaro-fauna Italiana." Some valuable systematic papers have also been published by Berlese, Kramer and Troussart. The super-families may be roughly tabulated as below:

1.—Body vermiform, often with but four legs, living in galls or in flesh, very minute forms.....DESMODECOIDEA.
Not living in galls or in flesh, adults with eight legs.....2.
2.—Water mites, soft bodied, mostly parasitic.....HYDRACHNOIDEA.
Land mites.....3.
3.—No stigmata (atracheate) body soft, legs supported by chitinous rods, no eyes, mostly parasitic forms.....PSOROPTOIDEA.
Stigmata present (tracheate), no chitinous rods visible.....4.
4.—Last joint of palpus forming a thumb or appendage, body soft, stigmata at base of mandibles, mostly free.....TROMBIDOIDEA.
Last joint of palpus simple.....5.
5.—Stigmata above on the cephalothorax, each with a seta, body coriaceous, cephalothorax very distinct from abdomen, no eyes, none parasitic. ORIBATOIDEA.
Stigmata not above, and without seta, body usually partly soft.....6.
6.—Mandibles forming a serrate proboscis, body hard, no sucker at tip of tarsus, eyes sometimes present, large, parasitic species.....IXODOIDEA.
Mandibles not forming a serrate proboscis, smaller species.....7.
7.—Stigmata between legs two and three, often with hard plates, legs with a sucker at tip, no eyes.....GAMASOIDEA.
Stigmata at base of mandibles, body wholly soft, no sucker at tip of legs, eyes often present.....EUPODOIDEA.

The Trombidoidea are readily recognized by the fact that the last joint of the palpus forms an appendage or thumb ; the penultimate joint ending in a claw. One genus (*Actineda*) apparently lacks this appendage, but its general appearance readily places it in the proper family. The characters to observe in the separation of the species in this super-family are as follows: the vestiture, shape and length of the hairs, the form of the palpus and its appendage, the length of the legs, and especially the form and size of the last joint of the first pair of legs ; finally the color and form of the body and special structures. We have five families of the Trombidoidea, which may be separated as follows:

1.—Palpi very prominent, and much thickened at base, mandibles styliform. no eyes, body naked ..... CHEYLETIDÆ.
Palpi not prominent, nor greatly thickened at base, mandibles uncinate or styliform, usually with eyes ..... 2.
2.—The posterior and anterior pairs of legs close together, not thickly clothed with hairs ..... ERYTHRÆIDÆ.
The posterior pairs of legs arise some distance behind the anterior pairs....3.
3.—With a median dorsal groove, or else with six eyes, no prominent distinction between cephalothorax and abdomen, eyes all sessile.
RHYNCOLOPHIDÆ.
No such groove above, only four eyes. ..... 4.
4.—Large, thickly clothed with hairs, abdomen much elevated above the cephalothorax, eyes stalked, free when adult, not spinning.....TROMBIDIDÆ.
Small, bare or sparsely clothed with hairs, spinning mites, eyes sessile, parasitic on plants ..... TETRANYCHIDÆ.

The Erythræidæ have two genera represented in our fauna:

Appendage to palpus present ..... **Erythræus.**
Appendage apparently absent ..... **Actineda.**

ERYTHRÆUS Latr.

The body is somewhat divided into two portions; the legs are long, and the body and legs both armed with long stiff hairs or bristles. Palpi five-jointed, the last joint forming an appendage. Eyes present ; they are very brightly colored, usually with red, and move very rapidly.

Say described one species from Georgia and Florida, *Erythræus mamillatus*. It is unknown to me. A species I have collected a few times about houses and barns may be known as

Erythræus spinatus nov. sp.—Length 1. mm. Color bright reddish, eyes black, a more prominent red spot between the eyes, abdomen dark in center probably from food. Body oblong, pointed behind, showing two constrictions in front of the middle, the first between legs ii and iii, the second above leg iv.

Mandibles prominent, slender, nearly as long as femur i. Two rows of long stiff bristles near the median line of the body, a few others on the cephalothorax and some extra ones at tip of abdomen. Legs very large and long, the fourth pair longest, all with many long bristles, but no shorter hairs. Some of the bristles on patellæ and tibiæ iii and iv are nearly as long as tibia iv. The bristles are more numerous, though shorter, on the metatarsi and tarsi than on the basal joints. Metatarsus ii is not broken up into smaller joints, all of the tarsi slightly curved. All the bristles are finely serrate. The palpi are quite large, the penultimate joint with a long, slender claw, beneath which is a much smaller one. The last joint or thumb is cylindrical, nearly four times as long as broad, reaching much beyond the end of the claw, and is furnished with many long bristles, some at the tip being the longest.

Locality.—Sea Cliff, Long Island, N. Y.

ACTINEDA Koch.

The body does not show any division, but is quite triangular, broadest behind, the legs are shorter than in *Erythræus*, and body and legs are covered with shorter hairs. Palpi four-jointed (the fifth is supposed to be represented by the presence of three large spines near the tip of the fourth). Eyes present; they move very rapidly and irregularly.

One species is very common on Long Island on grass, ascending trees and bushes in search of food. I have seen them eat the young larvæ of currant-worms.

Actineda agilis nov. sp.—Length 1.—1.2 mm. Body triangular, the angles rounded, a black eye each side. In front of the eyes there are four bristles; behind the eyes there are four rows of these bristles, four in each row. The legs bear a number of similar bristles, and are quite thickly clothed with finer hairs. Palpi with many bristles; the third joint bears on its inner side near the tip three stout spines, the outermost slightly longer than the other two; the last joint is much longer than the preceding, but has no terminal claw. The lower jaws of the mandibles, which are longer than the upper, end in two prominent claws. Each of the anal plates bears four hairs. Specimens found on the ground, grass or bushes, are yellowish, or but faintly red; specimens on trees are bright red, but I fail to find that they are otherwise different. I have found freshly moulted specimens encased in little silken white cocoons on chestnut trees, so I presume they have the power of spinning.

Locality.—Sea Cliff, Long Island, N. Y.; Ft. Lee, N. J.; Chicago, Ill.; Franconia, N. H. (Mrs. Slosson).

In the Trombidiidæ the abdomen is very large and much elevated above the cephalothorax. The eyes are four, two on each side at the end of a clavate pedicel which arises from the cephalothorax. The palpi are five-jointed, the last joint forming a clavate appendage or thumb. The body and legs are thickly clothed with hairs. The

anterior pair of legs are some distance from the posterior pairs. The species are large, red in color, and move quite slowly.

The larvæ are parasitic, and have been described under the genus *Leptus*. Our species may be placed in two genera:

With an accessory claw at end of palpus ..... **Ottonia.**
No accessory claw ..... **Trombidium.**

Five species of *Trombidium* are known to me, which I separate as below:

1.—Body with clavate hairs ..... **scabrum.**
Body with feathered hairs ..... 2.
2.—Claw of palp with a tooth, third joint of palp long ..... **giganteum.**
No tooth to claw ..... 3.
3.—Hairs very long, those on thumb nearly as long as itself, third joint of palp short, larger species ..... **magnificum.**
Hairs short, those on the thumb quite short, smaller species ..... 4.
4.—Third joint of palpi long, body oblong, eastern form ..... **sericeum.**
Third joint of palpi short, body pyriform, western form ..... **pacificum.**

Trombidium scabrum Say, Comp. Writ. vol. ii, p. 16.—Length 2.—2.5 mm. Body with very numerous, small, clavate, red hairs; legs with short, simple hairs, those on the underside at tip longer, all the joints short, last joint of leg i cylindrical, longer than the preceding one. The anterior legs are about as long as body; the posterior ones reaching behind the tip of the abdomen. Abdomen less than twice as long as wide, much broader in front. Second joint of palpus very broad, swollen above, beneath with some long, fine hairs; third joint nearly as broad as long; fourth short, ending in a long, slender claw; fifth, or thumb, clavate, reaching beyond the end of the claw, and with many short hairs.

Lives in the woods. Washington, D. C., and Sea Cliff, N. Y.

Trombidium sericeum Say, Comp. Writ. vol. ii, p. 16.—Length 3.—3.5 mm. Body oblong, twice as long as broad, slightly broader in front. Legs short, anterior pair not as long as body, posterior pair not reaching end of abdomen. Last joint of leg i equal to or barely longer than the preceding one, and slightly enlarged at the tip. Body thickly clothed with short, fine feathered hairs. Second joint of palpus not near as broad as in *scabrum*, twice as long as broad; third joint nearly twice as long as broad, the fourth long and tapering to a short claw; the thumb is clavate, reaching much beyond the claw, and with many short hairs.

In woods and in fields. Ithaca, N. Y.; Beaver Dam, Wis. [W. E. Snyder.]

Trombidium giganteum Riley, 1st Rept. U. S. Ent. Com.—Length 5—9 mm. Body about one and one half times as long as broad, broader in front, with several transverse impressed lines and some shorter depressions. The anterior pair of legs is shorter than the body, the posterior pair about reaching to

the tip of abdomen; last joint of leg i a little shorter than or almost as long as the preceding one. The plumose hairs on body are much longer than those of *sericeum*. The second joint of the palpus is but little swollen above at base; the third about twice as long as broad; the fourth long and tapering to a stout claw, which bears a tooth on its underside; the thumb is slightly clavate, the tip is truncate on one side, forming a circular, flat surface, surrounded by hairs; the whole palpus with long hairs.

Salineville, Ohio [A. D. Macgillivray]; Franconia, N. H. (Mrs. Slosson).

Trombidium magnificum LeConte, Proc. Acad. Nat. Sci. Phil. 1853. Length 5.—8. mm. Body pyriform, constricted a little behind the middle, much broader in front, with several circular depressions above. Anterior legs shorter than the body, posterior pair reaching beyond tip of abdomen. Body and legs thickly clothed with very long plumose hairs, much longer than those of *giganteum*. Last joint of leg i cylindrical, slightly shorter than the preceding. The second joint of the palpus is long and cylindrical; the third joint short, about as broad as long; the fourth longer and tapering into a long, slender claw; thumb is clavate; the whole palpus with very long fine hairs, those on the outer-side of the thumb being much shorter than those on the innerside.

Texas, New Mexico (?).

Trombidium pacificum nov. sp.—Length 2.2 mm. Body pyriform, with a number of circular depressions above, some connected transversely, tip of abdomen emarginate; anterior legs as long as body, posterior pair reaching beyond the tip of the abdomen. Last joint of leg i about equal to the preceding, slightly enlarged at tip. Hairs on the body very stout and finely feathered. Second joint of palpus broad, swollen at base, as in *scabrum*; third joint short, about as broad as long; fourth joint short, tapering into a claw, which is nearly as long as the joint; thumb clavate, thickly clothed with short hairs.

Olympia, Washington State [Trevor Kincaid].

We have at least two species of *Ottonia* which are very distinct:

Anal opening on dorsum ..... **locustarum.**
Anal opening below ..... **muscarum.**

Ottonia locustarum Riley (*Trombidium*), 1st Rept. U. S. Ent. Com.

Very peculiar in having the anal opening on the dorsum, like the Eupodid genus *Notophallus*. Dr. Riley's specimens were quite small; a specimen from Poughkeepsie, N. Y. [G. Van Ingen], is 5 mm. long. It is known from most of the Eastern States and from Texas and California.

Ottonia muscarum Riley (*Trombidium*), 1st Rept. U. S. Ent. Com.

I have not seen adults of this species; I have the young from Washington, D. C., and Sea Cliff, N. Y. Murray seems to think it the same as the European *T. parasiticum* Latr. The *Acarus para-*

siticus De Geer is the young of *Trombidium phalangii* De Geer, a true *Trombidium* and not an *Ottonia*.

Atoma gryllaria Le Baron, Second Ill. Rep't, p. 61, which Murray refers to *Trombidium* is unknown to me, it may be the young of *O. locustarum*.

Trombidium bulbipes Pack., Mass. Rep't, iii, 26, I have not seen ; it has, according to the description, no thumb to the palp, if such is the case it probably belongs in another family. Four species of *Leptus* have been described : *L. araneæ* Say, *L. hispus* Say, *L. americanum* Riley and *L. irritans* Riley. It would be better, I think, to drop these larval names entirely.

The Rhyncolophidæ may be readily distinguished from the Trombidiidæ by having sessile eyes, and the surface of the cephalothorax being continuous with that of the abdomen. We have two genera:

Four eyes, a dorsal groove..... **Rhyncolophus.**
Six eyes, no groove..... **Smaris.**

SMARIS Latr.

Six eyes two each side and two in the middle farther in front. No dorsal groove. Palpi short, of four joints. The mouth-parts can be considerably retracted into the body.

Smaris occidentalis nov. sp.—Length 2.6 mm. Body oblong, with a short, rounded, snout-like projection in front, and a slight constriction near the middle. Body with many small, irregular, flat tubercles, and covered with short, curved, stiff bristles; two submedian rows of six circular depressions and some others less distinct lower down. Last joint of leg i about as long as the preceding joint, slightly enlarged at the tip. Legs clothed with fine short hairs; the legs are shorter than in the European *S. impressa* or the Boreal *S. plana*, and the fourth pair is a little longer than the first. The mouth-parts are almost wholly withdrawn into the body.

Olympia, Washington State [Trevor Kincaid].

RHYNCOLOPHUS Duges.

Four eyes; palpi of five joints. On the anterior part of the body there is a median line often called dorsal groove. At the tips of the mandibles is a small circle of hairs; above the base of the mandibles is a rounded projection, the frontal tubercle bearing several long spines ; the tarsi of the legs are more or less enlarged and furnished with a scopula beneath.

No species, I believe, have been described from the United States, except *R. cavernarum* Pack. (Cave Memoir), which is unknown to me. I have obtained several species which live in or near woods, and can run quite rapidly.

1.—The dorsal groove enlarged at middle, and not at the posterior end; dorsum with fine short hairs; last joint of leg i longer than the preceding joint. **rosens.**

The groove enlarged at posterior end, and not in the middle; last joint of leg i shorter than the preceding ..... 2.

2.—Hairs on dorsum of two kinds, long erect spines and shorter, finer hairs....3.

Hairs on dorsum all of one kind, either spinous or fine hairs..... 4.

3.—Penultimate joint of leg i about five times as long as last joint; body globular..... **longipes.**

Penultimate joint of leg i about twice as long as last joint; body oblong, flattened..... **simplex.**

4.—Fourth pair of legs much longer than the body..... 7.

Fourth pair of legs equal to or barely longer than the body..... 5.

5.—Dorsal groove reaching much beyond eyes; dorsum with short, spinous hairs..... 6.

Dorsal groove not reaching beyond eyes; dorsum with fine, slender hairs. **pilosus.**

6.—Dorsum with some smooth patches..... **maculatus.**

Dorsum wholly covered with hairs..... **texanus.**

7.—Penultimate joint of leg iv three times as long as last joint..... 8.

Penultimate joint of leg iv but little over twice as long as last joint: dorsum with many erect hairs..... **cinctipes.**

8.—Sparsely clothed with stiff, erect hairs..... **parvus.**

Thickly clothed with short, stout hairs..... **montanus.**

Rhyncolophus roseus nov. sp.—Length 3 mm.; leg i, 1.9 mm.; leg iv, 2 mm. Red; body oblong, thick, slightly broader just behind leg ii. The eyes on each side are close together; the groove extends a little past the eyes, and is not enlarged at posterior end, but near the middle; legs very short, the last joint of leg i, slightly enlarged, and a little longer than the preceding joint. Dorsum clothed with short, fine hairs, those on the legs longer. Palpi short, third joint as broad as long, fourth short and with a short claw.

Washington, D. C., under leaves in the woods.

This species may form a separate genus, as it differs considerably from the usual form of *Rhyncolophus*.

Rhyncolophus longipes nov. sp.—Length 1 mm.; leg i, 4.6 mm.; leg iv, 5.2 mm. Body globular, with the general appearance of a Phalangid. Body and legs quite thickly clothed with long, black spines, and shorter, stiff, black hairs. Two large eyes each side, about their diameter apart, situated above the second pair of legs; dorsal groove reaching as far back as the eyes and enlarged at tip. Legs very long and slender, the last joint of leg i is about one-fifth the length of the preceding joint. Palpi very spinose, especially at the base of the fourth joint, which ends in a stout claw; the thumb barely reaching beyond the claw.

Florida.

Rhyncolophus simplex nov. sp.—Length 2.2 mm.; leg i, 3 mm.; leg iv, 3.6 mm. Red; body oblong, broadly rounded behind, with a row of about three depressions each side. Dorsum clothed with many fine, short hairs and

some longer erect spines. The groove is short, reaching as far as the eyes and enlarged at tip. Legs quite stout, last joint of leg i about two-thirds as long as preceding, last joint of leg iv very slightly swollen and about one-half as long as preceding joint. Third joint of palpus nearly twice as long as broad, fourth joint with three spines beneath.

Sea Cliff, N. Y. Under leaves.

Rhyncolophus parvus nov. sp.—Length 1.9 mm.; leg i, 2. mm.; leg iv, 2.8 mm. Red; body oblong, rounded behind, broadest in front of third pair of legs; groove extending from frontal tubercle as far back as eyes, enlarged at posterior end. Dorsum sparsely clothed with quite long, erect hairs. Legs slender, the last joint of leg i a little more than half as long as the preceding; last joint of leg iv about one-third the length of the preceding joint. Palpi with the third joint twice as long as broad, the fourth long and tapering to a short claw, and with three spines beneath.

Ithaca, N. Y.; Franconia, N. H. (Mrs. A. T. Slosson).

Rhyncolophus montanus nov. sp.—Length 3 mm.; leg i, 3 mm.; leg iv, 4 8 mm. Red; body oblong, broadly rounded behind; the groove short, extending as far back as eyes, its posterior end enlarged. Dorsum very thickly clothed with very short, stout hairs. Last joint of leg i about two-thirds as long as the preceding; last joint of leg iv cylindrical, slightly larger than the preceding, and only about one-fourth as long. Palpi short, third joint nearly twice as long as broad; fourth joint quite long, with a stout claw, and with five spines beneath.

Mt. Washington, N. H. Collected by Mrs. A. T. Slosson.

Rhyncolophus cinctipes nov. sp.—Length 2.8 mm.; leg i, 3 mm.; leg iv, 5 mm. Red; legs pale, with some red bands on femora, metatarsi and tarsi. Body oblong, rounded behind; groove short. Dorsum thickly clothed with erect spines, some very long, others shorter. Last joint of leg i much swollen, about two-thirds as long as the preceding; penultimate joint of leg iv about two and one-fourth times as long as the last joint, which is much swollen. Third joint of palpus one and one-half times as long as broad, with three spines beneath; fourth joint with four spines beneath.

Sea Cliff, N. Y. Under leaves in the woods.

Rhyncolophus maculatus nov. sp.—Length 1.5 mm.; leg i, 1.3 mm.; leg iv, 1.4 mm. Body oblong, somewhat pointed behind, widest just behind the second pair of legs. The dorsal groove does not reach the anterior margin of the body, but extends a long distance behind the eyes, nearly reaching the middle of the body; it is enlarged at each end. Body thickly covered with very short, red spinous hairs, leaving several smooth patches, which are pale; there is a long, smooth patch on each anterior side, its cephalic end bending toward the groove; in some specimens a smooth patch surrounds the groove, and the side patches are broken up into rows of spots. Legs short, last joint of leg i about two-thirds as long as the preceding. The legs are clothed with hairs like those on the body.

Sea Cliff, N. Y.; Washington, D. C., and Florida; running over small weeds near woodland.

Rhyncolophus texanus nov. sp.—Length 1.9 mm.; leg i, 2. mm.; leg iv, 2. mm.—Similar to *R. maculatus*, but has a longer, more slender body; the last joint of leg i nearly as long as the preceding; the body thickly clothed with short hairs like those of *R. maculatus*, but without smooth patches; the dorsal groove is exceedingly long, reaching from the anterior end of the body to the middle of the dorsum.

Texas.

Rhyncolophus pilosus nov. sp.—Length 1.4 mm.; leg i, 1.4 mm.; leg iv, 1.4 mm. Red; body oblong, more slender than other species, rounded behind, widest at middle and tapering to the head; groove short, only reaching as far as eyes. Body covered with quite long, stiff hairs. Legs short; last joint of leg i a little over half as long as the preceding; last joint of leg iv about half the length of the preceding joint.

Sea Cliff, N. Y., in moss.

TETRANYCHIDÆ.

These are spinning mites found sucking the leaves of plants. They are much smaller than the other members of this super-family. The palpi are short and stout, with a short appendage; the eyes sessile, and the surface of the cephalothorax continuous with that of the abdomen. The posterior pairs of legs are some distance behind the anterior pairs; they are all short, and the tarsi are never enlarged, as is common in the two preceding families. Two genera are known from the United States:

First pair of legs longer than the body..... **Bryobia.**
First pair of legs shorter than the body..... **Tetranychus.**

One species of *Bryobia* (*B. pratensis* Garman) is quite common in the United States. I have taken it at Washington, D. C., and at Sea Cliff, N. Y. *B. pallida* Garman is probably the young of *B. pratensis*. Good figures and description are found in "Insect Life," vol. iii, No. 2, p. 45.

Of *Tetranychus*, many species doubtless occur in the United States. The form sometimes seen on household plants and called the "red spider," has been referred to the European *T. telarius*, but I do not know that specimens have been compared with the European form.

Dr. Riley has described, in his annual report for 1889, a new species found on the orange, *T. sexmaculatus*. Another species is found quite commonly on cotton, and is figured by Glover.

I have collected a species on the leaves of the pecan tree, which may be called

Tetranychus viridis nov. sp.—Length .4 mm. Greenish, with a large blackish, or sometimes reddish, spot each side, covering the shoulders of the abdomen and the posterior angles of the cephalothorax. The cephalothorax is quite distinctly separated from the abdomen by a constriction; the abdomen broadest at the shoulders; the cephalothorax short, broadly rounded. The body bears a few long bristles, those on the legs are similar, but shorter. The anterior pairs of legs are somewhat larger than the posterior pairs.

On the upperside of the pecan leaves in Texas.

Another species is found very commonly on the leaves of oak and chestnut on Long Island.

Tetranychus bicolor nov. sp.—Length .35 mm. Cephalothorax pale; abdomen dark red, the anterior edge of the red with a median and lateral projections; legs pale yellowish; eyes red; bristles white. Sometimes there is a light dorsal streak on the abdomen. Body elliptical, pointed in front. Cephalothorax with four long bristles; abdomen with a submedian row of five, and an outer row of four bristles. All the bristles arise from small, circular depressions. Legs short, subequal, hairy. The male has the abdomen more pointed than in the female, otherwise similar.

I have found it in all stages during August and September, on the upperside of the leaves of the oak and chestnut, on Long Island.

CHEYLETIDÆ.

Two species have been recorded from the United States which belong to this family, viz., *Cheyletus seminivorus* Pack. and *Myobia musculi* Schrank. The latter is also common in Europe. I have not seen either of these forms, nor any other species from the United States, though doubtless several occur in all parts of the country.

EUPODOIDÆ.

This super-family embraces three families, but two of which are found in the United States.

Palpi five-jointed or three-jointed ..... BDELLIDÆ.
Palpi four-jointed ..... EUPODIDÆ.

The Bdellidæ, or snout-mites, are quite readily recognized by their bright red color, their elbowed palpi, and their long, pointed mandibles. The cephalothorax is quite distinct from the abdomen, and bears two eyes on each side. The posterior pairs of legs are close behind the anterior pairs, and there is no stennum. The principal characters to observe in the separation of species are: the shape of the joints of the palpi, and especially the last joint and its hairs; the shape of the mandibles, and some European authorities lay much stress on the position of the hairs on the mandibles; the form of the

body, length of legs, and of the bristles on the cephalothorax are of secondary importance. Our forms are carnivorous and live free, but there are some parasitic species in Europe. Three genera are known to me :

1.—Palpi three-jointed..... **Eupalpus.**
Palpi five-jointed .....2.
2.—Last joint of palpus forming a strong claw..... **Scirus.**
Last joint of palpus blunt..... **Bdella.**

Bdella and *Scirus* are quite similar, except in form of the palpus ; *Eupalpus* has the palpi much smaller appressed to the short mandibles, and the cephalothorax is much less distinct from the abdomen than in the other genera. Say described a species of *Bdella* (*B. oblonga*) from Georgia, and Packard a form from the sea-shore of New Jersey (*B. marina*). I have never seen *B. oblonga*, but have collected *B marina* and three other species on Long Island.

1.—Last joint of palpus widened at tip, hairs at end very much longer than the joint..... **cardinalis.**
Last joint not widened at tip, hairs only as long or shorter.....2.
2.—Hairs about as long as the joint ..... **robusta.**
Hairs distinctly shorter.....3.
3.—Joint two of palpus about twice as long as joints three plus four... **marina.**
Joint two three times as long as three plus four..... **peregrina.**

Bdella cardinalis nov. sp.—Length 1.2 mm. Red ; the mandibles are about as long as the cephalothorax, and the latter is a little broader than long, the sides convex ; there are two bristles above on each mandible, one near the base, and the other about one-third the distance to the apex. The second joint of the palpus is about three-fourths the length of the mandibles, it has a few short bristles ; the next two joints are subequal, about as broad as long ; the fifth joint about one-third longer than joints three plus four, and not one-half as long as joint two, it is widened at the tip and bears on the end two very long bristles, the outer one about as long as the mandibles, the inner one shorter, near the tip of the joint on the innerside are two short bristles. The cephalothorax has two bristles in front, and two near the posterior angles. The abdomen has a row each side, a few on the middle, some at tip, and a prominent one on each shoulder. The legs have many bristles, but quite short, except some on the fourth pair.

Living in the woods under leaves, in moss, and under rotten wood. Sea Cliff, N. Y. ; Ft. Lee, N. J. Apparently the same species from Chicago, Ill., and from Franconia, N. H. (Mrs. A. T. Slosson), but the specimens are mutilated.

Bdella peregrina nov. sp.—Length 1.7 mm. Red ; mandibles longer than the cephalothorax, which is a little broader than long, the sides slightly concave near the front ; each mandible has but one bristle above near the tip. The second joint of palpi is three-fourths as long as the mandibles, and has each side about five stiff hairs ; joints three and four subequal, as broad as long ; the

fifth joint but little shorter than the second, nearly three times as long as joints three plus four, not widened at tip, with four or five bristles each side and two at tip, the outer one about two-thirds as long as the joint, the inner one shorter. The body bears bristles similar to *B. cardinalis*, except those on the abdomen are shorter, and the one near the hind angles of the cephalothorax is much longer than usual; legs also with bristles, those on the fourth pair longest.

Sea Cliff, N. Y. On the ground under boards and chips.

Bdella robusta nov. sp.—Length 1.1 mm. Red; mandibles shorter than the cephalothorax, which is as broad as long, with the sides convex; there is but one bristle above on the mandibles near the tip; palpi short; second joint about one-half as long as the mandibles, and with a few bristles; the third and fourth subequal, as broad as long, the third with a bristle; the fifth nearly twice as long as the third plus fourth, not widened at tip, two bristles on each side and two at tip, the outer one as long as the joint. The bristles on the abdomen and legs are quite short.

One specimen has a number of black spots above; it seems related to *B. peregrina*, but has a much stouter body, with shorter mandibles and palpi.

Sea Cliff, N. Y. On the ground.

Bdella marina Pack., Am. Nat. 1884, p. 828.—Length 2. mm. Red; the mandibles are shorter than the cephalothorax, which is about as broad as long, the sides in front are concave; the mandibles have several bristles above at base and two or three nearer the tip. The second joint of palpus is about four-fifths as long as the mandibles, and with several long bristles; the third joint is about as long as broad, while the fourth is nearly twice as long as broad, both have several bristles, one on the inner side of the fourth is quite long; the fifth joint is nearly twice as long as the third plus fourth, it has about eighteen bristles, those near base are short, others near tip are quite long, the two on the tip not over one-half the length of the joint, and barely longer than some on the sides of the joint. The bristles on the body are very long and prominent.

This species lives on the sea-shore between high- and low-water marks.

Sea Cliff, N. Y.; New Jersey (Packard).

Scirus quadripilis nov. sp.—Length .7 mm. Red; body broadest at posterior edge of cephalothorax, tapering behind and before, the sides of the cephalothorax concave in front; a pair of long bristles on the anterior edge, nearly as long as the palpi, and a bristle at each posterior angle of the cephalothorax nearly as long as the entire body. The first joint of palpus very short; the second about twice as long as broad; the third similar, with a spine above and a longer one below; the fourth about the same length with a long spine at base on the inner side, and one at tip nearly as long as the joint, usually a small one near the middle; the fifth joint curved in the form of a claw with a short spine a little before the middle, and a fine hair just before the tip. Some short hairs on abdomen and legs, one or two long ones on tibia iv.

Sea Cliff, N. Y. On ground, under stones and in moss.

Eupalpus echinatus nov. sp.—Length .9 mm. Red; legs and mouth-parts pale, hairs black. Body oval, pointed in front, rounded behind, broadest behind the middle; the mandibles are short, on a small neck, the palpi closely appressed to their sides; first joint of palpus short, the second much longer, and the third shorter than second. Body and legs covered with short, stiff, thick hairs, which are finely serrate on the edge; these hairs are from one-half as long to nearly as long as the mandibles; there are about sixty of them on the dorsum, and one on the second and one on the third joint of the palpi.

Franconia, N. H. (Mrs. A. T. Slosson).

EUPODIDÆ.

The species of this family are very small, and I have not collected them thoroughly. Dr. Riley has recorded a species of *Penthaleus* from Florida, but his description shows that it does not belong to this family. In the shape of the various parts of the palpus are found the characters for the separation of species. The three genera known to me may be separated as below:

1.—First pair of legs more than twice as long as body..... **Linopodes.**
First pair of legs much shorter ....2.
2.—Hind femora much thickened, mandibles small..... **Eupodes.**
Hind femora normal, mandibles very large. ..... **Rhagidia.**

Linopodes antennæpes nov. sp.—Length .6 mm. Reddish or yellowish, sometimes with some pale marks; legs mostly yellowish, except distal half of leg i, which is hyaline. Body oblong, rounded in front and behind; broadest at hind margin of cephalothorax; cephalothorax semicircular, with a large shining eye each side. A narrow, emarginate, smooth band just behind cephalothorax, which gives off a median projection reaching to the tip of the abdomen, the whole forming a T. Dorsum of body with a few scattered hairs. Leg i more than twice as long as body, femur i longer than body; legs ii and iii slender, not quite as long as body; leg iv with femur enlarged. Mandibles short, forming a little cone; palpi a little longer than mandibles, joints subequal, the third longest. It differs from the European *L. motatorius* in having tibia i nearly as long as the metatarsus, and the tarsus i being divided into three or four joints. The body of the male is a little more globose than that of the female.

This lives on the ground, and is most common under pieces of wood, bark, etc., that have been on the ground for some time. The first pair of legs is used as feelers; ordinarily, it walks slowly, but when disturbed can move very rapidly to the rear.

Sea Cliff, N. Y.; Ft. Lee, N. J.; Chicago, Ill.; Franconia, N. H. (Mrs. A. T. Slosson).

Eupodes variabilis nov. sp.—Length .3 mm. Reddish; yellowish, or sometimes greenish; legs pale. Body oblong, broadest at base of abdomen; cephalothorax semicircular; abdomen slightly tapering, but broadly rounded behind; a large, elliptical, shining eye in each posterior angle of the cephalo-

thorax; body with a few scattered bristles more numerous at tip, where they form a cluster each side; legs with a few bristles, the first pair the longest, slightly longer than the body; femur i as long as femur, patella and tibia ii; leg iv as long as body, the femur very greatly thickened. Palpi short; first joint minute; second three times as long as broad, curved, with a hair on outer-side: third joint about same length, with two bristles near tip; fourth about one-half as long as third and much narrower, with about five stiff bristles at and near tip.

Sea Cliff, N. Y. This is found in the same places as *Linopodes*, and can run with remarkable swiftness.

Rhagidia pallida nov. sp.—Length .7 mm. Pale hyaline or whitish. Body oblong, distinctly divided into cephalothorax and abdomen; the cephalothorax a little longer than broad, broadest behind, truncate in front, with an eye near each posterior angle; abdomen broadest at base, then becoming much narrower with concave sides, the apex broadly rounded. Legs stout, but joints not thickened, hind legs longest, a little longer than body, first pair about the length of body. Body and legs with scattered bristles; mandibles very large, chelate, nearly as long as the cephalothorax, bent downwards, a fine hair above just before tip, the branches of mandibles without teeth, strongly curved. Palpi a little longer than mandibles; joint short; second three times as long as broad; third about one and one-half times as long as broad, with two bristles; fourth a little longer than third and pointed, with about six stiff bristles at tip and two near the base.

This is a most remarkable mite, its great resemblance to a Solpugid suggested to Thorell the generic name, *Rhagidia* diminutive for *Rhax*, a genus of Solpugidæ. In fact, I consider this mite as the key to the systematic position of the Acarina. I cannot help believing that the mites came from a form closely resembling the modern Solpugids. It lives on the ground under damp boards or stones.

Sea Cliff, N. Y.; Washington, D. C.; Franconia, N. H. (Slosson).

NEW SPECIES OF NOCTUIDÆ FROM TROPICAL AMERICA.

BY W. SCHAUS.

Acronycta theodora sp. nov.—Body light gray. Primaries above light gray; some oblique blackish streaks on the costal margin at the base and above the reniform; a black basal streak above the submedian; the t. a. line black, geminate, oblique, hardly visible below the submedian and forming a series of short curves; the t. p. line fine, black, geminate, very angular, preceded at the submedian by a short black streak, and cut and followed closely above by a long black streak reaching the outer margin; a fine black line from the t. p. to the outer margin between 5 and 6; a terminal row of black spots; the orbicular and reniform finely outlined in black, the latter spot containing a blackish crescent and a cluster of dark gray scales Secondaries white, the outer half of the veins black, and a terminal row of black spots between the veins and extending onto the fringe. Underneath grayish white, the veins darker, a terminal and an outer row of black spots, the latter forming short streaks on the veins; on the secondaries a discal spot connected by a dark gray shade with the costal margin. Expanse 40 mm.

Hab.—Jalapa, Mexico.

This may prove eventually to be a form of *H. dolens* Druce, but until intermediate forms are found I prefer considering it as distinct.

Acronycta velia sp. nov.—Head and thorax light gray. Abdomen yellowish. Primaries above gray, clouded with black on the costal margin; above the submedian a heavy black shade at the base and at the outer margin; the t. a. line geminate, the outer part being the most heavily marked, black; the t. p. fine, black, inwardly shaded with white, and at the apex outwardly shaded with black; some subterminal blackish spots and a row of small terminal black spots; the orbicular round, white, circled with black and containing a small cluster of dark scales; the reniform indistinct, black. The secondaries light gray, heavily clothed at the base with long yellowish scales. Expanse 40 mm.

Hab.—Jalapa, Mexico.

Microcœlia vesta sp. nov.—Head and thorax white. Abdomen gray Primaries above white; some brown spots on the costal margin; an interrupted terminal brown line; fringe white, spotted with brown; a few brown flecks in place of the t. a. and t. p. lines; in the cell a velvety brown — mark, from the interior of which a faint brownish shade extends to the costa. Secondaries light brownish gray; a fine brown line on the outer margin; fringe white. Underneath light brownish gray with a terminal brown line; some dark costal spots on the primaries and a discal brown point on the secondaries. Expanse 31 mm.

Hab.—Coatepec, Mexico.

Microcœlia pictula sp. nov.—Head and collar gray, mottled with brown. Thorax fawn color, patagia green. Abdomen brownish. Primaries above light green; the costa spotted with dark brown and buff; the inner margin finely pink; the basal line broad, dark brown; the t. a. line fine, wavy, geminate, brownish; the t. p. line similar, but interrupted near the costal margin by whitish scales; a subterminal row of irregular pink spots, inwardly shaded with brown; a terminal row of black spots finely shaded with white; the fringe reddish brown; the orbicular and reniform indistinctly outlined and each containing a pink spot, the two being connected by a dark line and a few pinkish scales. Secondaries light brown; a pale outer line and a terminal black line intercepted by the veins; fringe reddish brown. Underneath grayish brown, an outer broken line and discal spot on the secondaries. Expanse 24 mm.

Hab.—Castro, Parana.

Microcœlia stelligera sp. nov.—Palpi, head and thorax brown, mottled with gray scales. Primaries above brown, speckled with gray and yellow scales; the costa spotted with white; some yellow basal spots; some small yellow and white spots in place of the t. a. line; a geminate row of similar spots in place of the t. p. line, the two last inner spots above the inner margin being larger and bright yellow; a s. t. and a terminal row of yellow dots; the orbicular represented by a white dot, and the reniform by a round yellow spot; the fringe alternately brown and yellow. Secondaries brown, with a dark discal spot; a fine terminal luteous line; the outer half of the fringe white. Underneath: primaries brown, some costal apical white spots and the outer margin variegated with white; secondaries whitish, thickly irrorated with brown scales, especially at the apex; an outer wavy brown band and a large brown discal spot. Expanse 22 mm.

Hab.—Castro, Parana.

Bryophila mella sp. nov.—Head and collar whitish. Thorax gray, with posteriorly a carmine spot. Abdomen whitish gray, with some dark gray subdorsal tufts. Primaries above white at the base, with a large carmine spot; the basal line fine, black; the space between the basal and t. a. line olive-green; the t. a. line fine, black, outwardly shaded with white, followed by some clusters of carmine scales; median space white, thickly irrorated with greenish and pale brown scales; two black points in place of the orbicular and reniform, separated by a carmine spot; the t. p. line fine, black, interrupted, outwardly shaded with white, and inwardly touching a carmine spot below the median vein; a subterminal, irregular row of large carmine spots; the outer margin greenish with a terminal black line; the fringe gray interrupted by white scales. Secondaries white, a black discal spot, a fine terminal black line, and a smoky black shade at the apex. Underneath: primaries black, with the outer and inner margins white, and some white spots on the costa. Secondaries white, irrorated with black, and a conspicuous black discal point. Expanse 18 mm.

Hab.—Castro, Rio Janeiro.

Miana marmorata sp. nov.—Palpi, head and collar fawn color. Thorax and abdomen grayish brown. Primaries above whitish, thickly irrorated with dark brown; a large white U-shaped mark on the costal margin, effacing the orbicular and forming an inner white border to the reniform; this mark has the

portion below the subcostal vein filled with dark brown; the reniform is anteriorly and outwardly also shaded with white; the basal and t. a. line wavy, lilacine, finely bordered exteriorly with black; the t. p. line is fine, dark, exteriorly shaded with lilacine, and preceded above the inner margin by a whitish yellow shade; the space beyond the t. p. line dark gray mottled with light brown, and some clusters of lilacine scales; a terminal dark line interrupted by the veins and shaded inwardly with white; an apical white streak. Secondaries smoky-gray, with an indistinct discal spot. Underneath: primaries brownish; secondaries whitish, irrorated with brown, a large black discal spot and an outer wavy brown line; a terminal dark brown line on both wings. Expanse 25 mm.

Hab.—Castro, Parana.

Cyathissa violascens sp. nov.—Palpi, head and thorax lilacine. Abdomen light brown. Primaries slightly excavated below the apex; above divided into two shades by an oblique pale line from the middle of the costa to the t. p. line on the inner margin; the inner portion of the wing lilacine, with a basal wavy brown line and some nearly imperceptible darker shades on the inner margin; the outer portion of the wing light brown crossed by paler veins; the t. p. line fine, brown, curved, and outwardly shaded with lilacine; a subterminal brownish shade and a terminal yellowish line; the reniform finely outlined in brown; a small dark spot at the inner angle and a large apical lilacine spot. Secondaries brown, slightly hyaline at the base; a large brown discal spot; fringe whitish. Underneath reddish brown; a distinct outer line and discal spot, both more noticeable on the secondaries, which are whitish on the disc. Exp. 25 mm.

Hab.—Jalapa, Mexico. In coll. B. M. from Rio Janeiro.

Chytonyx kalma sp. nov.—Head light brown. Thorax mottled gray and brown. Abdomen grayish brown. Primaries above glossy grayish brown, all the lines very indistinct; the base and costal margin heavily mottled with white; the orbicular and reniform light gray, circled with white and then edged with black scales; the orbicular small, round; the reniform large and irregular. Secondaries paler. Underneath: brownish, with some small white spots on the outer portion of the costal margin of the primaries. Expanse 15 mm.

Hab.—Jalapa, Mexico.

In some specimens the white markings disappear almost entirely.

Chytonix morata sp. nov.—Head and thorax lilacine, mottled with brown. Abdomen light brown. Primaries above lilacine, indistinctly mottled with brown; a conspicuous oblique brown shade from the costal margin extending between the orbicular and reniform, and reaching the median vein, below which it is followed by a small brownish spot; the basal and t. a. lines lilacine, indistinct, not reaching the inner margin; the t. p. line lilacine and more clearly defined; the orbicular very small, the reniform large, both outlined with lilacine; beyond the t. p. line the wing is reddish brown crossed by a dark brown subterminal shade; a white terminal line; fringe very long, gray. Secondaries light brown, fringe yellowish white. Underneath light yellowish brown, a marginal dark shade and some subapical pale spots on the costa of the primaries. Expanse 27 mm.

Hab.—Jalapa, Mexico.

Amathes temperata sp. nov.—Palpi dark velvety brown, tipped with light brown. Head brown. Collar dark velvety brown margined with gray. Thorax and abdomen light brown. Primaries above light brown, the costal margin darker, and the outer margin beyond the subterminal light gray; the basal line fine, grayish, indistinct; the t. a. line grayish, bordered with darker scales, especially at the inner margin; a median darker brown shade; the t. p. line wavy, dark, most distinct towards the inner margin; the s. t. very irregular yellowish, inwardly shaded with darker scales and followed on the gray outer margin by some clusters of light brown scales; a terminal row of black points; the orbicular and reniform grayish, the former interrupting a velvety dark brown streak extending from the t. a. line to the reniform; the claviform edged anteriorly with dark brown. Secondaries grayish brown, lighter at the base; the fringe light gray. Underneath: primaries brownish, with a discal spot. Secondaries whitish, the costal margin reddish brown; a black spot in the cell; both wings crossed by an indistinct transverse line. Expanse 32 mm.

Hab.—Jalapa, Mexico.

Noctua totonaca sp. nov.—Palpi, head and collar reddish brown. Thorax dark brown. Abdomen light grayish brown above, reddish brown underneath. Primaries above very dark brown; the costal margin cream-yellow at the base, shading to rufous at the t. p. line, and inwardly bordered with black as far as the orbicular, which is small, elongated, reddish brown, circled with black; the reniform slightly paler than the ground color, also circled with black; the t. p. line fine, dark, and only visible at the costal margin; the s. t. shade fine, very slightly wavy, dark, beyond which the margin is lilacine flecked with brown; a terminal row of small, triangular, black spots; fringe brown at the base, grayish outwardly. Secondaries brownish gray, the fringe paler. Underneath brown, the costal margins tinged with red; a dark costal spot on the primaries; on the secondaries a discal spot and indistinct outer line. Expanse 35 mm.

Hab.—Jalapa, Mexico.

Carneades miztecа sp. nov.—Palpi and head dark reddish brown. Collar black, anteriorly bordered with yellow, so that the black forms a triangular spot. Thorax violaceous brown. Abdomen brown. Primaries above lilacine brown; the costal margin broadly creamy yellow to the t. p. line; at the base a velvety brown spot below the median vein; the base of the inner margin yellowish; the t. a. line fine, dark, geminate, only from the median vein to the inner margin; a dark velvety brown streak in the cell, interrupted by the orbicular and reniform, and not extending beyond the latter; the orbicular and reniform spots are posteriorly finely edged with dark brown scales; the claviform partially outlined in velvety brown scales; the t. p. line very fine, wavy, geminate and indistinct, followed by a series of oblong yellowish gray clusters of scales; the subterminal consisting of a few dark marks near the apex; fringe reddish brown. Secondaries whitish, semi-hyaline, the veins yellowish and the margins brownish. Underneath: the primaries with the disc brown; the secondaries whitish, the costal margin flecked with brownish scales; a discal spot and an indistinct outer line. Expanse 37 mm.

Hab.—Jalapa, Mexico.

Very closely allied to *Agrotis stentzi* Led.

Mamestra marca sp. nov.—Palpi, head and thorax fawn color, the latter speckled with black. Abdomen dark gray, with a subdorsal, roseate tuft on the first segment, followed by a darker tuft of scales. Primaries above lilacine, the margins, except at the apex, light green, mottled with black; from the middle of the costal margin to the outer margin above the angle, a broad blackish shade; the basal line black; the t. a. line interrupted and indistinct, consisting of a few black scales; the t. p. line fine, geminate, wavy, the outer portion shaded with dark gray; a subterminal reddish brown shade not reaching the apex; the orbicular and claviform light green, edged with black; the reniform dark gray edged with black and internally shaded with light green. Secondaries whitish gray with the margins smoky black. Underneath: the primaries blackish, the outer margin gray; the secondaries white, with the costal margin broadly dark gray, and a terminal gray shade on the outer margin. Expanse 32 mm.

Hab.—Jalapa, Mexico.

Mamestra infernalis sp. nov.—Body violaceous black, some golden scales laterally on the anal segment. Primaries above violaceous black; the t. a. line nearly imperceptible, wavy, with here and there a few golden brown scales; the inner and outer margins shaded with golden brown; the orbicular obsolete; the reniform small, golden brown. Secondaries semi-hyaline at the base, the costal and outer margins and long hairs on the inner margin dark golden brown. Underneath blackish, the disc and anal portion of the secondaries white, hyaline; a black discal spot on the secondaries; on the primaries some costal and terminal yellow dots. Expanse 41 mm.

Hab.—Jalapa, Mexico.

Mamestra seminaria sp. nov.—Head and thorax blackish gray. Abdomen brown. Primaries above blackish gray, with all the markings nearly lost in the general mottling; some light lines on the costal margin; the basal and t. a. lines very fine, black and wavy; beyond the t. a. line another fine black line extending from the costa to below the median vein, then ascending to the orbicular and joining the black line encircling that spot; the reniform circled with black and projecting a wavy black line to the inner margin; the t. p. line fine, black, outwardly dentate on the veins and edged on the same side with whitish scales; a subterminal fine black shade and a terminal black line; fringe brownish gray, crossed by a fine, paler shade. Secondaries white, with the extremities of veins 2-8 black, and the outer margin finely shaded with black above vein 2; the fringe white, with a transverse dark line. Underneath: primaries brownish gray, with a terminal row of darker spots; the secondaries white, with the costal and outer margins gray and a minute d scal point. Expanse 24 mm.

Hab.—Jalapa, Mexico.

Mamestra folia sp. nov.—Palpi and head yellowish white. Thorax and collar mottled olive-green and white. Abdomen light gray. Primaries above whitish gray mottled with olive-green; a black basal mark; the t. a. line white, straight, outwardly shaded below the costal vein with black; a broad olive-green median shade; below the median vein a black streak from the t. a. to the t. p. line; the t. p. line very indistinct, fine, dentate, black; the s. t. white, wavy, inwardly shaded with olive-green; beyond the s. t. the outer margin is more of a lilacine gray mottled with olive-green and brown; a terminal row of black points; the fringe

olive-green, interrupted and terminated with white; the orbicular whitish, with a green central point; the reniform indistinct, mottled green and white. Secondaries yellowish white, the outer margin shaded with dark gray; the fringe basally greenish yellow, otherwise white. Underneath whitish, speckled with gray along the costal margins and at apices; a minute grayish discal point on the secondaries. Expanse 30 mm.

Hab.—Castro, Parana.

Mamestra niveipuncta sp. nov.—Body brown. Primaries above dark glossy brown; an indistinct basal line; the t. a. line narrow, dark, and nearly straight, followed by another similar line; a dark median shade; the t. p. line geminate, fine and indistinct; chiefly perceptible on the veins and followed by a row of minute dark spots on the veins; a subterminal row of large, very dark spots, terminating at the inner angle with a pure white spot finely edged with blackish scales; the reniform reddish brown; a terminal, undulating yellowish line; the fringe wavy. Secondaries dark brown. Underneath brown, with a distinct outer line and discal spot, the latter most distinct on the secondaries. Expanse 42 mm.

Hab.—Jalapa, Mexico.

Closely allied to *Mamestra dotata* Druce.

Hecatera parens sp. nov.—Head and thorax brown, mixed with gray scales. Abdomen brown. Primaries above grayish brown, palest along the inner margin and on the median space; a narrow, dark, transverse, median shade; the t. p. line dark, indistinct, divided by a series of grayish scales; the s. t. line yellow, shaded on either side by clusters of brown scales; the extreme margin black; the fringe gray, mixed with yellow scales and crossed by an irregular paler shade; the orbicular and reniform dark, faintly outlined in grayish scales. The secondaries dirty white, the outer margin narrowly shaded with dark brown; the fringe white, crossed by a fine dark line near the base. Underneath grayish; a minute discal point on each wing and an indistinct dark outer line. Expanse 27 mm.

Hab—Jalapa, Mexico.

Hadena tepeca sp. nov.—Head, collar and abdomen gray. Thorax darker. Primaries above olivaceous brown; the costal margin spotted alternately with black and white; the t. a. line broad, irregular, dark gray partly outlined with black scales; the subcostal and submedian veins gray from the base to the t. a. line, and between them a cluster of yellowish scales; the t. p. line very dentate, fine, black, broadly shaded outwardly with dark gray; the s. t. shade bright yellow; a terminal black line interrupted by yellowish spots; the fringe pale, crossed by two dark lines, interrupted by pale spots; the orbicular and reniform dark gray, the latter inwardly shaded by a blackish line, which extends to the inner margin close to the t. p. line. Secondaries brownish, whitish towards the base and faintly showing the markings of the underside. Underneath whitish, the veins and costal margins dark, the secondaries with a discal spot and an outer line most conspicuous on the veins. Expanse 22 mm.

Hab.—Jalapa, Mexico.

Hadena vigas sp. nov.—Head and thorax mottled black and gray. Abdomen dark gray. Primaries above olivaceous brown, mottled with gray; along the costa some black and white spots, also some minute yellow spots; the orbicular and reniform yellow, circled with black and containing a cluster of grayish scales; the basal and t. a. line angular, whitish, outwardly bordered with black; a median wavy black shade; the t. p. line fine, black, outwardly shaded with white; the subterminal shade represented by some clusters of yellow scales; a terminal row of alternately black and yellow spots. Secondaries brown; the fringe at the base yellow, then black, and outwardly white. Underneath the primaries are dull brown, the costal and outer margins spotted with black and yellow; secondaries gray, the outer margin brownish; a basal and an outer transverse dark shade. Expanse 15 mm.

Hab.—Las Vigas, Mexico.

Hadena pusilla sp. nov.—Head and thorax light reddish brown. Abdomen dark brown. Primaries above dark brown, mottled with white along the costal margin; a basal white line outwardly edged with black; the t. p. line very indistinct blackish; a subterminal, irregular, wavy white line, widest at the apex. Secondaries brown. Underneath: primaries dull brown; a light discal spot and some terminal white marks; secondaries grayish, with an inner and an outer transverse dark shade, and a discal spot. Expanse 21 mm.

Hab.—Coatepec, Mexico. Peru.

Alibama lacruma sp. nov.—Palpi brown, with some paler scales. Head and thorax violaceous brown with a pale tuft posteriorly on the latter. Abdomen brown, with some yellowish subdorsal tufts and anal hairs. Primaries above dark brown as far as the reniform, the rest of the wing lighter brown, except a dark costal spot near the apex; the markings very indistinct and confluent; some blackish streaks on the costal margin; some lighter brown scales at the base; a dark streak containing some white scales at the base of the inner margin; the orbicular round, indistinct, faintly paler than the ground color; the reniform fawn color, distinct; the t. p. line alone distinct, dentate, pale, shaded on either side with darker scales; the subcostal, median, and submedian veins shaded with dark gray; the veins on the outer margin shaded with gray and flecked with white. Secondaries yellowish white; the outer margin broadly brown; the fringe luteous, with some dark scales on the anal portion of the outer margin. Underneath grayish white, thinly irrorated with brown; an inner and two outer, transverse, irregular and interrupted brownish lines; a discal spot on each wing. Expanse 29 mm.

Hab.—Castro, Parana.

Perigea perparvula sp. nov.—Head and thorax rufous. Primaries above light reddish brown, the outer margin darker, the veins speckled with black and gray scales; the costal margin with alternate black and yellowish spots; the cell dark gray, interrupted by the orbicular and reniform, which are of the ground color; the t. a. line geminate, very indistinct, brownish; the t. p. line single, followed by a geminate row of minute black points on the veins; a subterminal wavy dark shade; fringe dark. Secondaries white; a fine, terminal, wavy line; fringe white. Underneath: primaries reddish brown, with a broad

smoky streak in the cell; secondaries white, the costal and outer margins finely irrorated with reddish, and a terminal dark line. Expanse 23 mm.

Hab.—Castro, Parana.

Perigea parta sp. nov.—Head and collar reddish brown, the latter edged with grayish scales. Thorax dark brown. Abdomen dull grayish brown. Primaries above dark brown, with an irregular light reddish brown spot in the median space, on which the orbicular and reniform are visible, faintly outlined in white, the reniform being large and containing two clusters of blackish scales; the t. p. line alone distinct, dark brown, geminate; a few minute yellowish spots on the apical half of the costal margin. Secondaries blackish brown. Underneath brown, the secondaries dark grayish; a distinct discal spot and transverse outer shade on each wing. Expanse 22 mm.

Hab.—Castro, Parana.

Perigea trilinea sp. nov.—Body brown. Primaries above lilacine, thickly irrorated with brown scales; three distinct, transverse, dark bands, the inner straight inwardly shaded with pale scales, the outer inwardly oblique from the costa to below the median vein, then curving and turning outwardly to the inner margin; a subterminal straight band from the apex to the inner angle; the last two bands outwardly shaded with pale scales; the reniform with a dark line on either side. Secondaries dark brown; fringe lilacine, divided by a dark line. Underneath reddish brown, the inner margins of both wings whitish. Expanse 24 mm.

Hab.—Castro, Parana.

Perigea? transversa sp. nov.—Body brown. Primaries above brown, the base and outer margin paler than the rest of the wing; the t. a. line pale, straight, outwardly shaded with dark brown; the t. p. line slightly wavy, fine, dark, geminate, divided by a pale brown shade; a subterminal, irregular row of small brown spots, and a terminal dark brown line interrupted by the veins; the reniform alone visible, light brown outwardly shaded with dark brown. Secondaries dull blackish brown. Underneath the primaries are dark brown, the secondaries reddish fawn color with a small discal spot and an outer, fine, and wavy line. Expanse 25 mm.

Hab.—Castro, Parana.

Valleria jocosa sp. nov.—Palpi light brown. Head and thorax green, the patagiæ dorsally bordered with brown. Abdomen dark brown. Primaries above dark olivaceous brown; all the margins bright green; the costal margin with violaceous brown spots; a basal green line; the t. a. line wavy, green, divided by a fine brownish line and inwardly contiguous to a green patch below the median vein; the orbicular and reniform green edged with darker brown; the t. p. line visible near the costal and inner margins only, light green; a triangular brownish spot at the inner angle interrupting the green marginal shade; some subterminal dark brown shades; a series of dark spots on the fringe. Secondaries dark glossy brown, the fringe luteous. Underneath the wings are brownish with yellowish spots on the fringe; the base of the secondaries gray, and an outer transverse line and discal spot on the same wings. Expanse 29 mm.

Hab.—Jalapa, Mexico.

Dargida graminea sp. nov.—Palpi and head light rufous brown. Thorax lilacine brown. Abdomen yellowish white, with a brown subdorsal tuft on the first segment. Primaries above brownish; the median vein creamy white, the white continuing below vein 4 to the outer margin, where it becomes forked, owing to a small brown spot at its extremity; a white line at the base of the inner margin; a broad lilacine band at the base, forming an angle at the median vein, another at the middle of the submedian, whence it continues straight to the apex, interrupted only by the median vein: at the apex this band becomes whitish, and is divided by a short, brown, apical streak; the costal margin is broadly lilacine, mottled with brown and white; a marginal white line, preceded by another white line, this last interrupted by the veins, the intermediate subterminal brown portion with a dark streak on each inter-nerval space; in the cell two spots with a light brown central line edged with white and then with black, the inner spot nearly longitudinal, the outer spot oblique towards the costa. Secondaries pure white in the ♂; in the ♀ a broad brown outer margin. Underneath whitish, the costal margin and apices reddish. Expanse 30 mm.

Hab.—Castro, Parana.

Closely allied to *D. grammivora* Walk. and *D. procinctus* Grote, but smaller and decidedly lilacine in tone.

Conservula clauda sp. nov. ♂.—Body violaceous brown. Primaries above violaceous brown; above the submedian vein in the median space a large, round, velvety spot, connecting the t. a. and t. p. lines, which are finely outlined in paler scales; the t. p. line broadly shaded exteriorly with violaceous brown, paler than the ground color; the s. t. consisting of interrupted clusters of paler scales placed on indistinct, lanceolate, glossy brown spots; some minute, pale, terminal spots, and some similar spots on the apical portion of the costal margin. Secondaries brownish. Underneath the base of the wings yellow, the outer margins broadly flecked with violaceous brown scales; an interrupted, outer, transverse line, and a small discal spot on each wing. Expanse 28 mm.

Hab.—Jalapa, Mexico.

Tricholita? variata sp. nov.—Head and thorax light reddish brown. Abdomen dull brown. Primaries reddish or grayish brown, with all the lines very fine and distinct, of a darker shade than the ground color; the basal line straight; the t. a. line slightly wavy and further from the base on the inner margin than on the costal margin; an oblique median shade contiguous below the reniform to a conspicuous black spot, from which point the shade is perpendicular to the inner margin; the t. p. line forming an angle below the costa and is then nearly straight; the s. t. shade wavy; the orbicular and reniform very indistinct, faintly outlined with darker brown. Secondaries dull blackish brown, the fringe reddish gray. Underneath fawn color, thickly speckled with gray scales; the outer line fine, very distinct; a small discal point on the secondaries. Expanse 33 mm.

Hab.—Jalapa, Mexico.

Hadrœcia azteca sp. nov. ♂.—Head, collar and patagiæ reddish brown, mixed with darker scales. Thorax and abdomen blackish brown. Primaries above yellow, thickly covered with reddish brown scales; the veins brownish; a basal reddish line; the t. a. line fine, brownish, inwardly shaded with yellow;

a heavy, dark brown, median shade, curving inwardly at the inner margin; the t. p. line fine, dark, very irregular; the s. t. shade dark, beyond which the outer margin and fringe are violaceous brown; the orbicular and reniform faintly outlined in brown and containing some small white spots. Secondaries brownish white, the outer margin darker. Underneath brownish white, with a faint, transverse, outer line, and a minute discal spot on the secondaries. Expanse 32 mm.

Hab.—Jalapa, Mexico.

Achatodes juanæ sp. nov.—Head, thorax and abdomen subdorsally, reddish brown; abdomen otherwise dull brown. Wings above very dark brown, the primaries tinged with reddish at the apex; the t. a. line dark, wavy, inwardly shaded with dull brown; the median shade dark, indistinct; the t. p. line fine, dark, lunular, the lunules filled with dull brown scales; veins on the outer margin dark violaceous brown; the fringe very dark with a few light scales at the tip of each vein. Underneath light brown, flecked with dark scales, and a broad, dark, outer line on both wings. Expanse 38 mm.

Hab.—Paso de San Juan, Mexico.

Specimens from Jalapa are smaller. This is a much darker and duller insect than *A. zeæ* Harris.

Leucania rodea sp. nov.—Head and thorax very light gray. Abdomen somewhat darker. Primaries whitish gray, thinly speckled with black scales, and the veins shaded with darker gray; a velvety black streak from the base, cut by the median vein, continues to veins 4 and 5, from which point a blackish shade continues to the apex; a velvety black point between veins 5 and 6 at their origin; a terminal row of black spots, preceded just above the inner angle by a dark streak. Secondaries pearly white. Expanse 30 mm.

Hab.—Jalapa, Mexico.

Leucania suffusa sp. nov.—Head black, with some buff scales between the antennæ. Thorax black, the patagiæ inwardly clothed with long brown scales. Abdomen brown, the anal scales buff. Primaries above brown, very dark along the costal and inner margins; the veins blackish; a broad blackish shade below the median vein and reaching from the base to nearly the outer margin; some dark streaks in the cell followed by a small velvety black spot inwardly shaded with white scales; from this spot to the outer margin a broad dark shade; the outer margin dark, with an irregular row of velvety black spots; the fringe buff, then black, then buff again, with an indistinct darker line. Secondaries white; a terminal dark line and some dark scales on the extremities of the veins. Underneath whitish, the primaries with the costal and outer margins broadly dark. Expanse 35 mm.

Hab.—Castro, Parana.

Leucania adultera sp. nov.—Body grayish fawn color, the abdomen a little paler than the thorax. Primaries above grayish fawn color, the veins flecked with black; a subapical dark shade; the median vein shaded with gray; a pure white spot at the origin of veins 3, 4, 5. Secondaries whitish, with the veins and the outer margin broadly brownish gray; the fringe whitish. Un-

derneath: primaries grayish, with a dark spot and broad outer shade; secondaries white, with the costal and outer margins broadly gray. Expanse 35 mm.

Hab.—Castro, Parana.

Leucania pampa sp. nov.—Palpi and head fawn color. Collar gray, with a dark transverse line. Thorax fawn color. Abdomen whitish gray. Primaries above fawn color; all the veins pure white; long longitudinal dark streaks below the subcostal, median and submedian veins, also on the outer margin between the veins; a minute brownish point at the origin of vein 5, and a similar spot between veins 2 and 3. Secondaries white, with some terminal black points. Expanse 33 mm.

Hab.—Castro, Parana.

Leucania tinila sp. nov.—Head, collar and abdomen grayish. Thorax fawn color. Primaries above fawn color, the costal margin grayish flecked with black scales; the veins all grayish; some fine, dark, longitudinal streaks on the outer margin between the veins; the base flecked with black scales; an outer row of black points on the veins and a terminal row of black points between the veins. Secondaries white, the veins light brown; the outer margin narrowly shaded with brown, especially towards the apex, and there are some terminal black points on the apical half of the margin. Underneath: primaries grayish brown, the secondaries white, with the costal and outer margin thinly flecked with brown scales; a terminal row of black points on both wings. Exp. 34 mm.

Hab.—Castro, Parana. Allied to *L. linita* Gn.

Leucania adorea sp. nov.—Head, collar and thorax gray, the collar with two transverse dark gray shades. Abdomen whitish gray, anal segment yellowish. Primaries above gray; the costal margin whitish flecked with black; the inner margin dark gray; veins 2 and 5 broadly shaded with brown; the submedian finely brown; a velvety black streak at the base below the median vein; a black streak in the cell, and a black mark at the origin of veins 6 and 7. Secondaries white, a few terminal dark spots at the apex. Underneath the primaries are grayish brown, the secondaries white, with the costal margin buff, thinly flecked with black. Expanse 25 mm.

Hab.—Castro, Parana.

Leucania? castra sp. nov.—Head and collar brownish. Thorax light gray. Abdomen light brown. Primaries above light gray shaded with brown towards the outer margin and flecked with black scales; a velvety black streak from the base of the median vein to the outer margin, divided on the median space by a fine grayish line; a terminal row of black spots, the one at the inner angle being the largest; two black points in place of the orbicular and reniform. Secondaries whitish, the apex flecked with brown scales; a terminal row of black points not reaching the anal angle, and an indistinct discal spot. Underneath: primaries brownish; secondaries whitish, with the costal margin light brown; a discal point on each wing and a transverse outer line not complete on the secondaries; the terminal points as on the upper surface. Expanse 35 mm.

Hab.—Cartro, Parana.

APLOCAMPA gen. nov.

Thorax smooth. Abdomen extending considerably beyond the hind wings. Legs stout; tibiæ with long, coarse hairs; one pair medial, two pairs posterior spurs. Primaries broad, straight along the costa, apex acute, outer margin very slightly curved. Secondaries with the costal margin straight, the outer margin rounded, the anal angle somewhat obtuse. Vein 5 further removed from 4 than in *Scolecocampa*. Antennæ finely ciliate. Palpi porrect, very long and laterally flattened, the last joint curving downwards.

Aplocampa fumida sp. nov.—Palpi outwardly dark brown, inwardly fawn color. Collar fawn color. Thorax brownish. Abdomen brown dorsally, except on first two segments, which are fawn color; underneath fawn color. Primaries above brown, all the veins and costal margin tinged with fawn color; a small black spot in place of the reniform. Secondaries fawn color, thickly irrorated with smoky gray scales, except on the extreme outer margin; fringe smoky gray, at the anal angle fawn color. Underneath: the primaries are dark gray, paler on the outer and costal margins; the terminal portion of the veins yellowish; secondaries whitish, the costal and outer margins irrorated with brown; a minute brownish discal spot. Expanse 42 mm.

Hab.—Castro, Parana.

ADROCAMPA gen. nov.

Antennæ pectinated in the ♂; with minute paired bristles in the ♀. Palpi porrect, conical, long. Abdomen short, stout, hardly extending beyond the secondaries. Wings broad; primaries with the costal margin slightly convex, apex acute, outer margin rounded. Secondaries with the costal margin slightly convex. Legs slight, with short scales. Neuration the same as in *Aplocampa*.

Adrocampa pallescens sp. nov.—Head and palpi reddish brown. Thorax and abdomen fawn color. Primaries fawn color, thinly speckled with brownish scales; two dark points in place of the orbicular and reniform; beyond the reniform an indistinct, dark, longitudinal shade. Secondaries yellowish white, tinged with fawn color on the outer margin. Underneath reddish fawn color. Expanse 36 mm.

Hab.—Castro, Parana.

Adrocampa? grisea sp. nov.—Palpi dark brown below, whitish gray above. Thorax light gray. Abdomen whitish gray. Primaries whitish gray, irrorated with brown; a dark transverse outer line, not reaching the costal nor the inner margin; an indistinct subterminal shade; a small brownish gray spot at a fourth from the base below the median vein; two black points in place of the orbicular and reniform. Secondaries whitish, the fringe grayish. Underneath whitish, nearly the entire primaries and the costal margin of the secondaries thickly irrorated with brown. Expanse 30 mm.

Hab.—Castro, Parana.

STRABEA gen. nov.

Antennæ long, deeply pectinated in the ♂, ciliate in the ♀. Palpi porrect, rather long, pilose. Thorax smooth. Abdomen stout, conical, extending beyond the hind wings; the tibiæ with long, coarse scales. Primaries long, not very broad, the costal margin straight, the outer margin rounded, and curving at the inner angle. Secondaries with the costal margin slightly convex; vein 5 slightly curved at its origin, nearer 4 than 6; veins 3 and 4 stalked.

Strabea punctulata sp. nov.—Palpi reddish brown. Head and collar buff. Thorax reddish brown, shaded with buff anteriorly. Abdomen creamy white. Primaries above buff tinged with reddish brown, except on the outer margin, and everywhere irrorated with black scales, singly and in clusters; a distinct outer line consisting of clusters of black scales inwardly shaded with whitish, curving near the costal margin and reaching the inner margin near its center; a terminal row of dark points; a large cluster of dark scales near the base below the median vein; the orbicular and reniform small, formed of clusters of dark scales. Secondaries white, a few dark terminal spots near the anal angle. Underneath whitish, the costal margins irrorated with reddish brown; the terminal points on the secondaries only and more conspicuous than on the upper surface. Expanse: ♂ 45 mm.; ♀ 52 mm.

Hab.—Castro, Parana.

Doryodes cara sp. nov.—Palpi brown. Head gray, with a brown band. Collar brownish. Thorax brown anteriorly, pinkish posteriorly. Abdomen pinkish brown. Primaries above pinkish brown speckled with reddish scales; a broad streak from the base to the apex, rich brown, edged with white and posteriorly followed by a light brownish shade; a subterminal and a terminal pinkish line. Secondaries white, or light brown. Underneath: the primaries brownish, the secondaries white, both wings speckled with reddish scales, especially along the costal margins. Expanse 27 mm.

Hab.—Castro, Parana.

Doryodes dukinfieldi sp. nov.—Body brown. Primaries bright rosy red, the veins tinged with light brown, hardly noticeable, except on the median vein. Secondaries white. Underneath: primaries pinkish white, secondaries white. Expanse 27 mm.

Hab.—Castro, Parana.

Phiprosopus niveilinea sp. nov.—Body fawn color, speckled with black. Primaries above fawn color, thinly speckled with black; a median, straight, white band, not reaching the costal margin; a subterminal dark wavy shade; a terminal row of black points. Secondaries grayish white, speckled with brown, chiefly along the outer margin. Underneath grayish white speckled with brown, a faint outer line and minute discal point on the secondaries. Expanse 25 mm.

Hab.—Castro, Parana.

Caradrina infirma sp. nov.—Head and thorax fawn color. Abdomen grayish brown. Primaries above with four-fifths of the costal margin and a broad shade from the costa to the inner angle fawn color; the rest of the wing brownish with a darker t. a., median and t. p. shade; a subterminal, wavy, fawn color line on the dark outer margin; a terminal fine luteous line. Secondaries brownish, grayish towards the base; a terminal luteous line. Underneath: primaries brownish; secondaries whitish, the outer shade nearly invisible and a small brown discal spot. Expanse 36 mm.

Hab.—Castro, Parana.

Fagitana lurida sp. nov. ♂.—Palpi, head and thorax reddish brown. Abdomen white dorsally, brown underneath. Primaries above bright reddish brown, the outer margin coppery red; the orbicular and reniform, also a space from the base between the median and submedian vein, and terminating in a round spot below and contiguous to the orbicular, all coppery red mixed with yellowish scales; the t. p. and s. t. lines dark reddish brown outwardly shaded with grayish scales; beyond the t. p. line the veins are grayish brown, and there is a row of black points on the veins between the t. p. and s. t. lines; fringe dark brown. Secondaries white, with a faint marginal brown line. Underneath: primaries brown, with two outer, transverse, whitish lines; secondaries white, the costal margin broadly irrorated with brown. Expanse 30 mm.

Hab.—Castro, Parana.

The ♀ differs in having a pure white spot posteriorly in the reniform, and the secondaries have the outer margin broadly smoky brown.

Fagitana mursa sp. nov. ♂.—Head and thorax brown. Abdomen grayish brown. Primaries above dark silky brown, the lines darker and slightly reddish; the inner and outer lines forming a large V, slightly irregular in shape; the subterminal line wavy, distinct; the orbicular and reniform outlined in dark brown. Secondaries white with a terminal dark line, and the apex slightly brownish; the fringe white, towards the apex grayish. Underneath: the primaries and costal margin of the secondaries reddish brown, with an outer transverse line; the secondaries otherwise white. Expanse 30 mm.

Hab.—Castro, Parana.

The ♀ is somewhat larger, 34 mm., and differs in having a pure white spot posteriorly in the reniform, and the secondaries are dark gray, especially towards the margins.

Fagitana funebris sp. nov.—Head and thorax black. Abdomen light brown. Primaries above dark grayish, nearly black; two small velvety black spots in place of the reniform; an outer row of very small black spots on the veins and a terminal row of similar spots. Secondaries white, the costal margin grayish, and a terminal dark interrupted line on the apical half of the outer margin. Underneath: primaries dark gray, with a short blackish streak from the costa, near the apex; secondaries white, with the costal margin broadly gray, and an indistinct outer row of short streaks on the veins. Exp. 40 mm.

Hab.—Castro, Parana.

Orthodes iole sp. nov.—Body light reddish brown. The primaries above light reddish brown; the costal margin finely white; the veins flecked with grayish scales; all the lines very indistinct, slightly darker than the ground color; the orbicular consisting of a few grayish scales; the reniform indistinctly outlined in dull brown mottled with gray scales. Secondaries brownish white, smoky on the margins; the fringe reddish. Underneath light brown, reddish along the costal margins; a smoky outer line crossing both wings and a small dark discal spot on the secondaries. Expanse 28 mm.

Hab.—Jalapa, Mexico.

Orthodes albipuncta sp. nov.—Head and thorax dark brown. Abdomen dorsally dark brown, underneath reddish; anal tuft reddish yellow. Primaries above dark, glossy, violaceous brown, the outer margin lighter brown; a few pale reddish brown spots on the costal margin; the basal line black, shaded with pale reddish brown; the t. a. line black, indistinct; the median shade dark, outwardly curved and very indistinct; the t. p. line consisting of a few dark points on the veins; the s. t. consisting of a few black marks most visible near the costal margin; the orbicular very small, light reddish brown; the reniform large, whitish, outlined with black. Secondaries brown, the extremity of the fringe whitish. Underneath: the primaries dark reddish brown; the secondaries whitish, with the costal margin broadly reddish; a discal spot on both wings and a heavy brown, transverse, outer line. Expanse 28 mm.

Hab.—Jalapa, Mexico.

Tæniocampa vellerea sp. nov. ♀.—Body violaceous brown. Primaries violaceous brown, paler at the base and beyond the t. p. line, which is very fine, yellowish gray, and gradually curves inwardly towards the inner margin; a s. t. irregular grayish line, inwardly shaded with a series of dark glossy spots; the median space except on the costal and inner margins is deep brown; the spots are obsolete. Secondaries dull brown, whitish at the base. Underneath: primaries dull brown; secondaries white, with the costal margin dark grayish brown. Expanse 32 mm.

Hab.—Jalapa, Mexico.

The ♂ has the secondaries whitish with the outer margin narrowly brown.

Tæniocampa mulina sp. nov. ♂.—Light pinkish brown. The primaries above with the t. a. line angular, narrow, dark brown; a narrow, dark, median shade; the t. p. line very fine, black, deeply lunular; the s. t. shade indistinct, brownish; a terminal, pale, fine line; the orbicular obsolete; the reniform consisting of a conspicuous round black spot. Secondaries light smoky brown. Underneath grayish brown; a dark, transverse, outer line, and a dark discal point on the secondaries. Expanse 30 mm.

Hab.—Jalapa, Mexico.

Tæniocampa contempta sp. nov.—Body grayish brown. Primaries above dull reddish brown, the lines smoky brown; the t. a. slightly wavy, the median nearly straight, the t. p. slightly curved and followed by a series of short gray streaks on the veins; the s. t. shade slightly golden; the tips of the veins grayish; the orbicular obsolete, the reniform faintly outlined in brown.

Secondaries smoky white at the base, otherwise brownish. Underneath dull brown, the outer line conspicuous, dark brown; a discal point on the secondaries. Expanse 34 mm.

Hab.—Jalapa, Mexico.

Apamea mutina sp. nov.—Body and primaries brown, thickly irrorated with minute white scales; no lines visible; the reniform small, white, divided in two parts by some brownish scales. Secondaries whitish at the base, the outer margin broadly brown. Underneath: primaries light brown irrorated with white scales; secondaries white, the margins irrorated with brown scales and a small discal spot. Expanse 30 mm.

Hab.—Jalapa, Mexico.

Calymnia picturata sp. nov.—Head and thorax dark gray. Abdomen light brown. Primaries above with the base dark gray; the median space pale buff anteriorly, light green posteriorly, crossed by an indistinct, dark brownish, median shade; the t. p. line velvety black, inwardly projecting a black mark which touches the reniform; reniform black, circled with white, which is again finely edged with black; the t. p. line is followed anteriorly by a dark gray patch on the costal margin, and is posteriorly shaded with lilacine; the rest of the outer margin is light green mottled with brown; the fringe dark gray intercepted by whitish spots. Secondaries light gray at the base, the outer half brownish; fringe white, divided by a dark line. Underneath: primaries dark grayish, with a white apical spot and some pale spots along the costal margin; secondaries whitish, flecked with black chiefly along the costal margin and apical portion of the outer margin; a discal spot and an outer transverse shade. Expanse 28 mm.

Hab.—Las Vigas, Mexico.

Anomis flammea sp. nov.—Head and collar vermillion. Thorax violaceous red. Abdomen brown, with a pale lateral shade. Primaries above red; a brown space at the base of the inner margin; the t. a. line very indistinct, wavy, grayish; the t. p. line forming several waves below the costa, a deep curve beneath the reniform, and then wavy to the inner margin, dark maroon, outwardly edged with whitish scales; a interrupted, dark, irregular, subterminal band; the orbicular consisting of a few brownish scales; the reniform dark gray, divided by a deep red shade. Secondaries brown, the fringe paler. Underneath: violaceous; a fine, transverse, outer line on the secondaries, and also on the costa of the primaries; the inner and outer margins of the primaries yellowish; a white discal point on the secondaries. Expanse 31 mm.

Hab.—Jalapa, Mexico.

Plusia masoni sp. nov.—Palpi, head and thorax reddish gray. Abdomen gray-brown. Primaries above light golden brown; the veins, especially towards the apex, lilacine; the base of the wings lilacine gray, projecting a similar shade along the median vein; from the apex to the inner margin an oblique lilacine band, divided by a fine brown line and preceded above vein 3 by some angular lilacine lines; a subterminal, wavy, lilacine line, and a terminal lunular line. Secondaries brownish. Underneath dull gray-brown, with an indistinct outer line and discal spot on the secondaries. Expanse 31 mm.

Hab.—Jalapa, Mexico.

Basilodes mina sp. nov.—Head and collar lilacine. Thorax golden yellow. Abdomen grayish brown. Primaries above golden; the costa iridescent, pale lilacine gray; basal line short, fine, only visible on costa; the t. a. line fine, oblique to base of inner margin; the median shade indistinct, forming a deep outward curve; the t. p. line from the apex to the inner margin, fine, straight and joined before the apex by an oblique and slightly curved line from the costal margin; two silvery white spots between the subcostal and median veins. Secondaries grayish, fringe pale. Underneath: primaries brown, paler on the outer margin; secondaries whitish, with a faint outer line. In shape the primaries are very acute, the outer margin rounded and inwardly curved above the inner angle. Expanse 35 mm.

Hab.—Jalapa, Mexico.

Chloridea vigasia sp nov.—Body fawn color. Primaries fawn color, crossed by brownish lines; the costa towards the apex irrorated with black scales; the basal and t. a. lines straight, inwardly shaded with pale fawn color; the t. p. and s. t. lines slightly oblique and outwardly shaded with pale fawn color; beyond the t. p. line the veins are irrorated with black scales; the orbicular and reniform outlined in pale fawn color. Secondaries yellowish white, the outer margin finely light brown. Underneath yellowish white, the costal margins irrorated with brown; the fringe on the primaries dark. Exp. 26 mm.

Hab.—Las Vigas, Mexico.

Chloridea niveilinea sp. nov.—Head and collar whitish. Thorax and abdomen light brown. Primaries above light greenish brown; the costal and submedian veins for two-thirds of their length snowy white; the outer portion of the median vein, and thence an obiique band to the apex, also the commencement of the branches of the median vein snowy white. Secondaries light brown, fringe white. Underneath: primaries light brown; secondaries whitish, finely clouded with brown. Expanse 28 mm.

Hab.—Las Vigas, Mexico.

Acontia jalapensis sp. nov.—Head and thorax violaceous brown. Abdomen light brown. Primaries above violaceous brown, the basal half darker; the costal margin from the base to the s. t. broadly brownish white; a median, dark, oblique shade, broad between the orbicular and reniform, tapers towards the inner margin near the angle; the t. p. line geminate, fine, slightly darker than the ground color; the s. t. very indistinct, forming a slight dark shade; some terminal minute pale points. Secondaries whitish, broadly shaded with brown on the outer margin and showing the transverse outer line and discal spot of the underside. Primaries underneath dull brown, the inner margin whitish; a transverse dark outer line. Expanse 21 mm.

Hab.—Rinconada, Mexico.

Acontia morides sp. nov.—Head and thorax white. Abdomen yellow. Primaries above with the base creamy white; the costal margin for four-fifths creamy white, interrupted by an oblique, olive-green, inner band, which joins the posterior median space, all of which is olive-green mottled with dark lilacine scales; the t. p. line dark lilacine outwardly shaded with dark brown and followed by some dark brown scales on the costal margin near the apex; the outer margin creamy white with some terminal black spots; the fringe white, with a

dark gray spot above the inner angle; the orbicular and reniform consisting of two black points, the reniform followed by a larger dark spot. Secondaries yellowish white, shaded with yellow on the outer margin; a small yellowish discal point. Underneath yellowish; a broad dark streak in the cell on the primaries, followed by a large dark spot not reaching the apex; a dark spot on the fringe above the inner angle; on the secondaries a dark discal point. Exp. 20 mm.

Hab.—Castro, Parana.

Tarache astydamia sp. nov.—Palpi and head dark brown. Thorax brown, speckled with white. Primaries above brown, speckled with lilacine; the t. a. line paler, geminate, slightly curved outwardly; the t. p. line similar, forming an angle close to the reniform and then curving in towards the inner margin; the orbicular and reniform outlined in lilacine; a large, dark brown, subapical spot between the t. p. and s. t. lines, the latter being fine, pale, and slightly wavy; a dentate, terminal, lilacine line. Secondaries brown, slightly bronzed along the outer margin. Underneath brownish gray speckled with brown, the outer line and discal spot on the secondaries indistinct. Exp. 23 mm.

Hab.—Castro, Parana.

Tarache onytes sp. nov.—Body dark brown speckled with gray. Primaries above glossy brown mottled with steel gray; the t. a. line velvety brown shaded with steel gray; the orbicular and reniform steel gray, separated by a velvety brown spot; below the orbicular a small white spot outwardly shaded with velvety brown; the t. p. line only visible below the median vein, dark brown, heavily shaded on either side with steel gray; the subterminal wavy, interrupted, whitish; the outer margin flecked with steel gray; a terminal row of small velvety brown spots; fringe glossy brown. Secondaries grayish, with a wavy darker outer line, and an interrupted terminal black line; the fringe grayish, with the extremity glossy brown. Underneath: primaries brownish, the outer margin flecked with white, a dark outer line and a black terminal line; the secondaries dark gray with the outer line and discal spot distinct, and a terminal black line. Expanse 20 mm.

Hab.—Castro, Parana.

Obrima rinconada sp. nov.—Palpi reddish brown. Head, thorax and abdomen light brownish gray. Primaries above buff flecked with brownish scales and striæ; a pale median line, straight from the subcostal vein to nearly the submedian, when it turns slightly outwards to the inner margin; the outer half of the wing slightly darker, with a dark, wavy, subterminal shade, and a terminal row of dark gray points; a black point in place of the reniform. Secondaries yellowish gray, with an indistinct, median, brownish shade, beyond which the wing is flecked with brown scales. Underneath yellowish, with a black discal point on each wing. Expanse 43 mm.

Hab.—Rinconada, Mexico.

Bolina inconspicua sp. nov. ♂.—Body very light brown. Primaries above light brown, all the markings indistinct; a few black scales scattered over the wing; the t. a. line slightly oblique, geminate, dark; two angular, median shades, the outer one the more defined and inwardly shaded with luteous; the t. p. line wavy, geminate, dark, followed by a row of yellow spots between the veins; a terminal row of minute dark spots; the orbicular obsolete, the reniform

very large, pale, irregularly bordered with blackish scales. The secondaries grayish white, with the outer margin smoky brown. Underneath dirty white; a dark discal spot on the primaries and a black discal point on the secondaries; a terminal row of black dots. Expanse 41 mm.

♀.—Primaries light brown, a few black scales at the base; the t. a. line fine, indistinct, yellowish; a similar median line very indistinct; the t. p. line hardly indicated in a darker shade; a s. t. row of yellowish spots, some of them contiguous to small clusters of black scales. The secondaries and underneath the same as in the ♂. Expanse 46 mm.

Hab.—Jalapa, Mexico.

Catocala juanita sp. nov.—Palpi light gray, with a broad brown band. Thorax and abdomen dorsally gray; abdomen laterally and underneath white. Primaries above light gray; the t. a. line oblique, from the costa to below the median vein, then curving inwardly to the submedian, and from there making on the inner margin an outward curve; an indistinct, narrow, median shade; the t. p. line fine, black, wavy, irregular, outwardly shaded with dark gray; a subapical black line, and a blackish shade from vein 6 to the outer margin between veins 3 and 4; a terminal, geminate, wavy, black line. Secondaries pure white, with a fine terminal black line on the outer margin, and a few blackish scales about the anal angle. Underneath white, some grayish flecks, chiefly at the apex of the primaries. Expanse 62 mm.

Hab.—Paso de San Juan, Mexico.

ACANTHODICA gen. nov.

Antennæ in the ♂ fasciculate, in the ♀ simple. Palpi erect, second joint quadrate, long; third joint short, rounded; both covered with short scales. Thorax smooth, covered with broad, flat scales. Abdomen stout, conical or flattened, extending one-third beyond the hind wings. Legs with short scales; in the medial spurs one is very long, the other very short, and there is another spur about the middle of the tibia; the tarsi very spiny; the hind tibia with two pairs of spurs, the tarsi very spiny. Primaries long, narrow, with the costal margin straight, the outer margin very slightly rounded. Vein 3 nearer to 4 than to 2; vein 5 originating close to 4, but not contiguous; vein 10 starting near the end of the cell and anastamosing with 8 just beyond the origin of 7, forming a long, narrow areolet. Secondaries with the costal margin straight, the outer margin sinuate; veins 3, 4, 5, stalked. Underneath: the disc of the primaries with long scales.

Acanthodica grandis sp. nov. ♀.—Palpi grayish brown, streaked with dark gray. Head violaceous brown, with some darker markings. Collar brown. Thorax lilacine, speckled with dark scales. Abdomen brownish. Primaries above gray, mottled with moss green; the median space below the median vein brown; the lines very fine, velvety brown, and somewhat wavy, most heavily marked on the costal margin; the basal line irregular, with a short, longitudinal,

dark streak below the median vein; the t. a. line at a third from the base: the t. p. line touching the inner margin close to the angle and followed by a brownish shade tinged with blackish at the costa; the s. t. forming a blackish spot on the costa and then some irregular brownish shades; the apex lighter gray, limited by a brownish line: a terminal row of black points; the orbicular and reniform large, outlined finely in dark brown; below these spots a darker round spot. Secondaries whitish hyaline, the veins brown and margins smoky black; a dark terminal, interrupted line; fringe light grayish brown. Underneath the primaries are dark brown, the apex and a large space on the outer margin light brown; secondaries whitish hyaline, the margins light brown flecked with black, a black discal spot, a median, interrupted, dark shade and an outer series of dark streaks on the veins. Expanse 51 mm.

Hab.—Jalapa, Mexico.

What I think is probably a ♂ of this species is smaller, the markings more obliterated, and the secondaries white, with hardly any smoky markings on the outer margin. Expanse 39 mm. Several specimens from Peru.

Agrotis splendens Druce and *Xylina drucei* Dognin, are congeneric with this species.

Acanthodica xylinoides sp. nov.—Body fawn color. Primaries above fawn color; a large dark brown spot on the costal margin at the base and another at a third from the base, some streaks above the reniform, and the apical portion of the margin dark blackish brown; the inner margin brown, widest at the angle; the t. a. line only visible just above the inner margin; the t. p. consisting of a geminate row of almost imperceptible, small, brownish spots; some dark brown streaks on the outer margin, and a terminal row of white points; fringe grayish, with an angular dark line; the orbicular obsolete, the reniform indistinct, and below this a round spot faintly outlined in brown. Secondaries white, slightly hyaline; the costal margin, apex and a terminal line dark brown; veins 6 and 7 dark brown, the other veins lighter brown with an outer row of blackish points; the fringe light brown, dark at the anal angle, where there are also some brown-black spots. Underneath: primaries dark brown, the costal and inner margins light; the secondaries whitish, the outer points on all the veins, the costal margin and apex fawn color irrorated with dark scales. Exp. 46 mm.

Hab.—Zamora, Ecuador.

Acanthodica lignaris sp. nov.—Head and collar buff. Thorax brown, speckled with very dark scales. Abdomen brown dorsally, buff underneath. Primaries brown, the costal margin buff, the inner margin dark brown; all the lines very indistinct, forming broad, transverse, dentate, grayish brown shades, and most distinct on the costal and inner margins; there are two median shades, the inner one joining the t. a. shade; the t. p. forming a line of minute brown dots followed by an irregular dark shade, on which are some short streaks, forming below the costal margin a dark quadrate spot, which is followed by a similar spot close to the apex; a terminal row of white dots followed by a brownish line interrupted by white scales; fringe mottled brown and white; the orbicular small, hardly visible, the reniform large, more distinct, and below these a round light brown spot. Secondaries whitish, semi-hyaline; all the veins brown; the costal and outer margins smoky brown, somewhat metallic;

at the anal angle some dark brown spots separated by whitish shades. Underneath the primaries are bronzed; the costal margin buff streaked with brown and spotted with white near the apex; the outer margin buff, streaked with brown. The secondaries underneath whitish, the costal margin buff mottled with dark brown scales; a terminal brown line surmounted by small brown spots; a median and an outer transverse series of dark streaks on the veins, the median series being only visible near the costal and inner margins; a brown discal spot. Expanse 40 mm.

Hab.—Peru.

Ophisma tecta sp. nov.—Body brown. Primaries above with the base light brown, the outer portion of the wing dark brown, the two shades separated by a fine, inwardly curved, white, median line; some apical white scales. Secondaries dark brown, the fringe slightly tinged with reddish. Underneath dark gray; a lunular, transverse, brown outer line, beyond which the margins are brown shaded with gray, and with a terminal row of white spots. Exp. 43 mm.

Hab.—Castro, Parana.

Phurys moxa sp. nov.—Body gray. Primaries above gray, thinly speckled with darker scales, the t. a. line slightly oblique, dark brown, preceded by a small black spot below the submedian vein, and beyond the line the submedian is heavily shaded with black; the median space crossed by several rows of dark lunular lines; the t. p. line slightly curved, inwardly yellow, bordered with darker scales and followed by a darker shade extending to a subterminal row of dark spots indistinctly connected by an angular line; the outer margin paler, with some terminal, dark, lunular spots. Secondaries light brown, becoming darker towards the outer margin, the extreme portion of which is grayish. Underneath light brown, slightly iridescent. Expanse 37 mm.

Hab.—Jalapa, Mexico.

The orbicular represented by a yellowish dot, the reniform indistinct, laterally shaded with darker gray.

Bendis gentilis sp. nov.—Palpi and head brown. Thorax gray. Abdomen brown. Primaries above gray along the inner and outer margins, otherwise mottled with brown, and everywhere there are slightly darker, indistinct, transverse striæ and black flecks; the t. a. line distinct, dark, crossing a small spot below the median vein; a median shade very similar to the t. a. line and crossing a quadrate black spot between the orbicular and reniform; the t. p. line reddish brown, geminate, forming an angle near the costa, all the anterior portion of the line crossing a blackish shade, which extends from the reniform to the s. t. line; the s. t. consisting of a row of black spots, followed by an indistinct, grayish, lunular line; a fine, terminal, wavy line; the fringe brownish gray. The secondaries gray brown; an outer wavy brown line followed by a row of black spots near the anal angle. Underneath yellowish gray, an outer transverse shade and minute black discal point on the secondaries. Expanse 33 mm.

Hab.—Paso de San Juan, Mexico.

Bendis fufius sp. nov.—Body brown. Primaries above brown, with a large dark brown spot on the costal margin between the t. p. and s. t. lines, on which are three white dots on the extreme margin; the basal and t. a. lines wavy, dark brown; a dark brown median line; the t. p. line very fine, wavy, interrupted, curving deeply in, nearly reaching the median line, and shaded

with lighter brown; the s. t. shade paler brown, straight anteriorly, wavy posteriorly, and beyond this the veins are slightly irrorated with white; a small apical dark brown spot, a long velvety brown streak between veins 5 and 6, and a shorter, similar streak between veins 6 and 7; the orbicular obsolete, the reniform large, indistinct, heavily shaded on either side with dark brown. Secondaries brown; an indistinct inner and outer brown line; a subterminal yellowish band, followed by a narrow whitish shade and preceded on the inner margin by a dark brown shade; all the markings most distinct near the inner margin. Underneath grayish brown, an outer irregular brown line, outwardly shaded with grayish; a s. t. row of spots, yellowish and most noticeable near the apex of the primaries; some yellowish costal spots. Expanse 27 mm.

Hab.—Coatepec, Mexico.

Thermesia electrica sp. nov.—Palpi reddish, last joint brown. Head and collar dark velvety brown. Thorax light reddish brown, speckled with black. Abdomen grayish brown. Primaries varying from buff through all reddish shades to brown; surface more or less irrorated with black scales, a cluster of black scales near the base below the median vein; an indistinct median shade; a black point in place of the orbicular; the reniform large, gray, outlined in pale buff and shaded on either side with brown scales; the t. p. line forming a sharp angle between veins 6 and 7; this line pale, with an inner row of black points and joined at the angle by a pale streak from the apex; some subapical dark spots; a terminal row of brownish spots inwardly shaded with paler scales; fringe reddish. Secondaries brown; fringe red. Underneath: primaries brown, margins reddish, a black discal point; secondaries buff irrorated with black, fringe red, and a black discal point. Expanse 38 mm.

Hab.—Jalapa, Mexico.

Thermesia lara sp. nov.—Head and thorax light brown. Abdomen grayish brown. Wings light brown, the veins yellowish; from the apex of the primaries to the inner margin of the secondaries near the anal angle, a straight buff line, outwardly shaded with dark brown; on the primaries this line is joined near the apex by an oblique streak from the costal margin; on the same wings there is an oblique line from the inner margin near the base to the costal margin at a third from the base, also buff outwardly shaded with dark brown; the orbicular small, round, the reniform large, with outwardly a slight indentation, outlined in dark brown and then with buff; on both wings a subterminal row of small blackish spots shaded with white scales, and a terminal brown line surmounted by a small brown spot on each internerval space; on the secondaries a small dark brown discal spot. Underneath buff, irrorated with reddish brown, a wavy dark outer shade on both wings and the terminal line distinct; two small brown spots in the cell on the primaries and a small discal streak and spot on the secondaries. Expanse 39 mm.

Hab.—Mexico, Peru.

Pangrapta rufa sp. nov.—Body reddish brown. Wings above reddish; the base of the primaries and the costal margin to almost the apex broadly gray; two basal, three median and a submarginal, wavy, grayish brown, transverse bands; a terminal row of minute gray spots. The secondaries are crossed by numerous dentate grayish brown lines, leaving the outer margin broadly reddish, and there is also a terminal row of minute gray spots. Underneath brown, with transverse darker shades. Expanse 44 mm.

Hab.—Rio Janeiro.

A CATALOGUE OF THE DESCRIBED JASSOIDEA OF NORTH AMERICA.

BY EDWARD P. VAN DUZEE.

The present is a first attempt to catalogue the described North American forms of the lower families of the Homoptera–Cicadina. Although doubtless incompleted, in some respects, it is hoped that it may prove of value to the American students of this group of insects.

The classification and arrangement here adopted is substantially that proposed by the writer in his "Synopsis" published in these TRANSACTIONS, vol. xix, pp. 296–300, December, 1892. The superfamily term there suggested includes those families in which the hind tibiæ are multispinose. These in our North American fauna are Ulopidæ, Ledridæ, Bythoscopidæ, Tettigonidæ and Jassidæ. The first of these might, perhaps, be removed from this series, and the second united with the Tettigonidæ as a subfamily of equal value with Gyponina and Tettigonina. The position assigned to family Bythoscopidæ is purely arbitrary, as it strictly parallels the Jassidæ, to which it is allied by *Macropsis*, and in a linear arrangement might with equal propriety follow the Tettigonidæ.

No pains has been spared to bring the synonymy up to date, and it is believed that the catalogue represents very nearly the present state of our knowledge of the North American Jassoidea. The arrangement of the references under each species is intended to exhibit its history from its first publication to the present time, giving the authority for each change and the date of its publication.

In the case of the genera and higher groups references will be found to all the more important European works. Where a species occurs also in Europe this has not been attempted, but in the works cited will be found a good description, or at least full references, from which the literature of the species may be easily ascertained. All references to the American literature of the group has been included, except in the Typhlocybina, where no attempt has been made to complete the record, nor has any search been made through the voluminous literature on economic entomology issued by the numer-

ous Agricultural Experiment Stations throughout the country. The object has been to assist the beginner in naming his material and determining the geographical distribution and systematic position of the genera and species he may meet with. As so many of our southern forms have been described from material obtained from stations beyond the limits of the United States, all species recorded from Mexico and the West Indies have been included.

The accompanying bibliography embraces all books and papers referred to in the catalogue and will serve as an index to its completeness. The list of localities affixed to each species is, in most instances, very incomplete, and shows how little is now known of their geographical distribution. The index includes genera and synonyms only. All names *in italics*, whether of genera or species, must be looked for in the catalogue among the synonyms. Any North American species that does not appear in the catalogue in the genus under which it was described, should be found under that generic name in the index.

The nomenclature of the Typhlocybina is little more than a copy of Mr. C. W. Woodworth's work on this subfamily published in vol. v of "Psyche," pp. 211–214. In the Jassidæ and Bythoscopidæ the author has studied nearly all the species and assumes much of the responsibility for the synonymy adopted. While in the Tettigonidæ the labors of Stal, Signoret and Spangberg have furnished the authority for most of the references.

The following summary will afford an idea of the proportion in which the several families are represented in our fauna :

	genera.	species.
ULOPIDÆ	1	1
LEDRIDÆ	1	1
BYTHOSCOPIDÆ	7	47
TETTIGONIDÆ	20	176
JASSIDÆ	29	187
Total	58	412

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3. North American Typhlocybini, Psyche, vol. v, pp. 211–214, July, 1889.

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Superfamily JASSOIDEA.

Cicadellina Burm., Handb. d. Ent. ii, 1, pp. 102, 103, 1835 (includes Cercopidæ). Packard, Guide 5th ed. p. 53, 1876 (includes Cercopidæ).

Serripedes Am. and Serv., Hemip. pp. lxiii and 569, 1843 (omits *Ulopa*). Walk., Homop. iii, p. 732. 1851 (omits *Ulopa*).

Tettigoniidæ Fitch, Homop. N. Y. State Cab. p. 55. 1851. Fitch, do. reprint in Lintner's 9th Rept. p. 395, 1893.

Jassina Stal, Stet. Ent. Zeit. xix, p. 234, 1858 (omits *Ulopa*). Dohrn, Catalogus Hemip. p. 83, 1859. Stal, Stet. Ent. Zeit. xxv, p. 73, 1864. Kirschb., Cicad. v. Wiesbd. p. 14, 1868. Stal, Of. Vet. Ak. Förh. xxvii, p. 727, 1871 (in part). Sahlbg., Cicad. p. 67, 1871.

Jassida Stal, Hemip. Af. iv, pp. 83, 99, 1866. Stal, Hemip. Fabr. ii, p. 58, 1869. Fieb., Kat. Europ. Cicad. p. 8, 1872 (omits *Ulopa* and *Ledra*); Cicad. d'Europ. i, pp. 44, 99, 1875 (omits *Ulopa* and *Ledra*). Mayr, Tabellen p. 25, 1884 (omits *Ulopa* and *Ledra*).

Jassidæ Fieb., Verh. Zool.-Bot. Gesell. Wien, xvi, p. 500, 1866. Berg, Hemip. Argent. p. 249. 1879. Woodworth, Bull. Ill. State Labr. Nat. Hist. iii, p. 9, 1887. Packard, Ent. for Beginners, p. 82, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

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Ulopidæ Dohrn, Catalogus Hemip. p. 83, 1859. Kirschb., Cicad. v. Wiesbd. p. 14, 1868 (subfam.). Edwards, Trans. Ent. Soc. Lond. 1886, p. 45. Van Duzee, Trans. Am. Ent. Soc. xix, p. 296, 1892.

Ulopida Fieb., Kat. Europ. Cicad. p. 7, 1872 (family). Fieb., Cicad. d'Europ. i, p. 42, 1875. Mayr, Tabellen, p. 24, 1884.

Ulopini Puton, Cat. Hemip. Palæ. p. 76, 1886 (tribe).

Genus ULOPA Fall.

Fallen, Spec. Nova Hemip. Disp. Meth. Exh. p. 19, 1814. Germ., Mag. der Ent. iv, p. 54, 1821. Fallen, Hemip. Sueciæ, Cicad. p. 65, 1826. Gray, Griffith's Animal Kingd. xv, p. 226, 1832. Burm., Handb. d. Ent. ii, 1, pp. 104, 106, 1835. Westw., Intro. Mod. Classif. Ins. ii, Synop. p. 116, 1840. Burm., Gen. Ins. i, genus 3, *Ulopa*, 1840. Am. and Serv., Hemip. p. 557, 1843. Walker, Homop. iii, p. 650, 1851 (mention). Stal, Hemip. Af. iv, p. 102, 1866. Kirschb., Cicad. v. Wiesbd. pp. 14, 68, 1868. Sahlb., Cicad. p. 370, 1871. Fieb., Cicad. d'Europ. i, p. 96, 1875, and ii, pl. 9, 1876. Mayr, Tabellen, p. 24, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 102, pl. 1. fig. 26.

Ulopa canadensis Van Duzee, Trans. Am. Ent. Soc. xix, p. 301, 1892. Harrington, Ottawa Nat. viii, p. 67, 1894.

Ulopa n. sp. Harrington, Ottawa Nat. vi, p. 32, 1892.

Hab.—Canada, New York.

Family LEDRIDÆ.

Scarides Am. and Serv., Hemip. p. 576 1843 (in part).

Ledridæ Kirschb., Cicad. v. Wiesbd. p. 14, 1868; Edwards, Trans. Ent. Soc. Lond. 1886, pp. 45, 101. Van Duzee, Trans. Am. Ent. Soc. xix, p. 296, 1892.

Ledrina Stal, Of. Vet. Ak. Förh. xxvii, p. 731, 1870 (in part).

Ledrides Sahlbg., Cicad. pp. 67, 101, 1871 (tribe).

Scarida Fieb., Cicad. d'Europ. i, p. 44, 1875 (family). Mayr, Tabellen p. 25, 1884 (family).

Ledrini Puton, Cat. Hemip. Palæ. p. 77, 1886 (tribe).

Ledrinæ Ashmead, in Smith's Cat. Ins. of N. J. p. 443, 1890.

Genus LEDRA Fabr.

Fabr., Syst. Rhyng. pp. vii and 24, 1803. Germ., Mag. d. Ent. iv, p. 54, 1821. Gray, Griffith's Animal Kingd. xv, p. 226, 1832. Burm., Handb., d. Ent. ii, 1, pp. 105, 116, 1835; Gen. Ins. i, pl. 9, *Ledra*, 1840. Westw., Intro. Mod. Classif. of Ins. ii, Synop. p. 116, 1840. Am. and Serv., Hemip. p. 576, 1843. Walker, Homop. iii, p. 809, 1851 (notice). Stal, Of. Vet. Akad. Förh. xix, p. 495, 1862 (notice). Kirschb., Cicad. v. Wiesbd. pp. 14, 70, 1868. Sahlbg., Cicad. p. 101, 1871. Fieb., Cicad. d'Europ. i, p. 99, pl. 11, fig. 33, 1875; and ii, pl. 9, 1876 Mayr, Tabellen p. 25, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 101, pl. 1, fig. 25.

Ledra perdita Am. and Serv., Hemip. p. 577, pl. 11, fig. 5, 1843; Walker, Homop. iii, p. 810, 1851 (mention).

Hab.—Pennsylvania (Am. and Serv.)

Family BYTHOSCOPIDÆ.

Bythoscopidæ Dohrn, Catal. Hemip. p. 84, 1859 (includes *Typhlocybina*). Kirschb., Cicad. v. Wiesbd. p. 16, 1868 (subfamily). Fieb., Kat. Europ. Cicad. p. 8, 1872; Cicad. d'Europ. i, p. 100, 1875 (subfamily). Mayr, Tabellen p. 25, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, pp. 45 and 104. Ashmead, Ent. Am. iv, p. 67, 1888; and v, p. 125, 1889. Van Duzee, Ent. Am. v, p. 165, 1889; Trans. Am. Ent. Soc. xix, p. 296, 1892. Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893.

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Bythoscopina Berg, Hemip. Argent. p. 276, 1879.

Bythoscopini Puton, Cat. Hemip. Palæ. p. 77, 1886 (tribe).

Genus MACROPSIS Lewis.

Lewis, Trans. Ent. Soc. Lond. i, p. 49, 1834. Am. et Serv., Hemipteres p. 585, 1843. Fieb., Verh. zool.-bot. Gesell. in Wien xviii, p. 449, 1868. Kirschb., Cicad. v. Wiesbd. p. 16, 1868. Stal, Hemip. Af. iv, p. 126, 1866. Sahlbg.,

Cicad. p. 113, 1871. Fieb., Cicad. d'Europ. i, p. 101, 1875. Mayr, Tabellen p. 26, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 104. Ashmead, Ent. Am. v, p. 126, 1889.

Oncopsis Burm., Gen. Ins. i, genus *Bythoscopus*, 1846.

Stragania Stal, Rio Janeiro Hemip. ii, p. 49, 1862.

Macropsis humilis Stal.

Stragania humilis Stal, Stet. Ent. Zeit. xxv, p. 85, 1864.

Hab.—Mexico.

Macropsis missella Stal.

Stragania missella Stal, Stet. Ent. Zeit. xxv, p. 85, 1864.

Hab.—Mexico.

Genus PACHYOPSIS* Uhler.

Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 466, 1877. Ashmead, Ent. Am. v, p. 125, 1889.

Pachyopsis lætus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 466, 1877. Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893.

Hab.—Colorado.

Pachyopsis robustus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 467, 1877.

Hab.—Colorado, New Mexico, Texas, California.

Genus BYTHOSCOPUS Germ.

Germ., Silb. Rev. i, p. 180, 1833. Burm., Handb. d. Ent. ii, 1, pp. 104, 109, 1835; Gen. Ins. i, pl. 10, Gen. *Bythoscopus*, 1840. Am. and Serv., Hemip. p. 584, 1843. Kirsch., Cicad. v. Wiesbd. p. 16, 1868; Die Gatt. Idiocerus, p. 4, 1868. Fieb., Verh. zool.-bot. Gesell. Wien, xviii, p. 450, 1868; Cicad. d'Europ. i, p. 102, 1875; and ii, pl. 9, 1876. Berg, Hemip. Argent. p. 276, 1879. Mayr, Tabellen, p. 27, 1884. Edwards, Trans. Ent. Soc. London, 1886, p. 105, pl. 2, fig. 1. Ashmead, Ent. Am v, p. 126, 1889. Van Duzee, Ent. Am. vi, p. 221, 1890. Prov., Pet. Faune Ent. Can. ii, p. 287, 1890.

Bythoscopus variabilis (Fitch).

♀ *Athysanus variabilis* Fitch, Homop. N. Y. State Cab p. 60, 1851; id. reprint in Lintner's 9th Rept. p. 400, 1893; Trans. N. Y. State Ag. Soc. xviii, p. 853, 1858. Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 551, 1869. Packard, Bull. 7, U. S. Ent. Comm. p. 128, 1881 (after Fitch) Fifth Rept. U. S. Ent. Comm. p. 512, 1890 (after Fitch).

Bythoscopus variabilis Walk., Homop. iii, p. 876, 1851 (mention). Prov., Pet. Faune Ent. Can. iii, p. 289, 1890 (*variegatus*). Van Duzee, Ent. Am. vi, p. 223, 1890; Psyche v, p. 390; in Lintner's 9th Rept. p. 410, 1893. Harrington, Ottawa Nat. vi, p. 31, 1892 (mention); Can. Ent. xxvi, p. 16, 1894 (mention).

Pediopsis variabilis Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention).

Macropsis clitellarius Prov., Nat. Can. iv, p. 377, 1872 (= var. D).

* This genus is probably equivalent to *Macropsis* Lewis.

♂ *Athysanus abietis* Fitch, Homop. N. Y. State Cab. p. 60, 1851; id. reprint in Lintner's 9th Rept. p. 400, 1893; Trans. N. Y. State Ag. Soc. xvii, 748, 1857; and xviii p. 854, 1858. Packard, Bull. 7, U. S. Ent. Comm. pp. 129, 235, 1881 (after Fitch); Fifth Rept. U. S. Ent. Comm. pp. 512, 854, 1890 (after Fitch). Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 551, 1869 (mention).

Bythoscopus abietis Walker, Homop. iv, p. 1162, 1852 (mention).

Hab.—Canada, New York, New England.

Bythoscopus sobrius Walker, Homop. iii, p. 874, 1851. Van Duzee, Ent. Am. vi, p. 224, 1890. Harrington, Ottawa Nat. vi, p. 31, 1892 (mention); Can. Ent. xxvi, p. 16, 1894 (mention). Slosson, Ent. News v, p. 5, 1894 (mention).

Hab.—Canada, New York, White Mountains, Michigan.

Bythoscopus cognatus Van Duzee, Ent. Am. vi, p. 225, 1890.

Hab.—Canada, New York.

Bythoscopus fenestratus (Fitch).

Athysanus fenestratus Fitch, Homop. N. Y. State Cab. p. 60, 1851. Fitch, id. reprint in Lintner's 9th Rept. p. 400, 1893; Trans. N. Y. State Ag. Soc. xviii, p. 853, for 1858. Packard, Bull. 7, U. S. Ent. Comm. p. 128, 1881 (after Fitch); Fifth Rept. U. S. Ent. Comm. p. 512, 1890 (after Fitch). Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 551, 1869 (mention).

Bythoscopus fenestratus Walker, Homop. iv, p. 1162, 1852 (mention). Prov., Pet. Faune Ent. Can. iii, p. 289, 1890. Van Duzee, Ent. Am. vi, p. 225, 1890; Psyche v, p. 390, 1890. Harrington, Ottawa Nat. vi, p. 31, 1892. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Pediopsis fenestratus Van Duzee, Can. Ent. xxi, p. 9, 1889.

Pediopsis flavescens Prov., Nat. Can. iv, p. 376, 1872; Pet. Faune Ent. Can. iii, p. 295, 1890.

Hab.—Canada, New York, North Carolina.

Bythoscopus pruni Prov., Pet. Faune Ent. Can. iii, p. 290, 1890. Van Duzee, Ent. Am. vi, p. 226, 1890. Harrington, Ottawa Nat. vi, p. 31, 1892 (mention); Can. Ent. xxvi, p. 16, 1894 (mention). Slosson, Ent. News v, p. 5, 1894 (mention).

Hab.—Canada, New York, New England, Brit. America, Mountains of Colorado.

Bythoscopus minor (Fitch).

Athysanus minor Fitch, Homop. N. Y. State Cab. p. 60, 1851. Fitch, id. reprint in Lintner's 9th Rept. p. 400, 1893; Trans. N. Y. State Ag. Soc. xviii, p. 583, 1858. Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 551, 1869. Packard, Bull. U. S. Ent. Comm. p. 128, 1881 (after Fitch); Fifth Rept. U. S. Ent. Comm. p. 512, 1890 (after Fitch).

Bythoscopus minor Walk., Homop. iii, p. 876, 1851. Van Duzee, Ent. Am. vi, p. 227, 1890; Psyche v, p. 390, 1890; in Lintner's 9th Rept. p. 410, 1893.

Pediopsis minor Van Duzee, Can. Ent. xxi, p. 9, 1889.
Macropsis ocellatus Prov., Nat. Can. iv, p. 377, 1872.
Hab.—Canada, New York, Maryland.

Bythoscopus nigrinasi (Fitch).
Athysanus nigrinasi Fitch, Homop. N. Y. State Cab. p. 61, 1851; id. reprint in Lintner's 9th Rept. p. 401, 1893.
Bythoscopus nigrinasi Walker, Homop. iv. p. 1162, 1852. Van Duzee, Ent. Am. vi, p. 228, 1890; Psyche v, p. 390, 1890; in Lintner's 9th Rept. p. 410, 1893.
Hab.—Canada, New York, Connecticut, N. Carolina, Michigan.

Bythoscopus distinctus Van Duzee, Ent. Am. vi, p. 224, 1890.
Hab.—New York, Maryland, North Carolina, Illinois, Michigan.

Bythoscopus fagi (Fitch).
Athysanus fagi Fitch, Homop. N. Y. State Cab. p. 61, 1851. Fitch, id. reprint in Lintner's 9th Rept. p. 401, 1893.
Bythoscopus fagi Walk., Homop. iv, p. 1162, 1852 (mention). ? Van Duzee, in Lintner's 9th Rept. p. 410, 1893 (reference).
Hab.—New York (Fitch).

Bythoscopus flavus Walker, Homop. iii, p. 875, 1851.
Hab.—"Hudson's Bay."

Bythoscopus peregrinans Stal., Frega Eugenes Resa, Ins. p. 291, 1859. Berg, Hemip. Argent. p. 276, 1879.
Hab.—California, etc.

Genus PEDIOPSIS Burm.

Burm., Gen. Ins. pl. 10, *Bythoscopus*, 1840. Am. and Serv., Hemip. p. 586, 1843. Stal., Hemip. Af. iv, p. 128, 1866. Kirschb., Der Gatt. Idiocerus p. 4, 1868; Cicad. v. Wiesb. pp. 16, 169, 1868. Fieb., Verh. zool.-bot. Gesell. Wien, xviii, p. 450, 1868. Sahlbg., Cicad. pp. 68, 116, 1871. Fieb., Cicad. d'Europ. i, p. 102, 1875, pl. 11, figs. 41, 42; and ii, pl. 9, 1876. Mayr, Tabellen p. 27, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 108, pl. ii, fig. 6. Ashmead, Ent. Am. v, p. 125, 1889. Van Duzee, Ent. Am. v, p. 167, 1889. Prov., Pet. Faune Ent. Can. iii, p. 293, 1890.

Macropsis Westw., Intr. Mod. Classif. of Ins. ii, Synop. p. 117, 1840.

Pediopsis viridis Fitch, Homop. N. Y. State Cab. p. 59, 1851; id. reprint in Lintner's 9th Rept. p. 399, 1893. Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 467, 1877. Van Duzee, Can. Ent. xxi, p. 9, 1889; Ent. Am. v, p. 170, 1889. Prov., Pet. Faune Ent. Can. iii, p. 294, 1890. Van Duzee, Psyche, v, pp. 238, 388, 1890 (mention). Harrington, Ottawa Nat. vi, p. 31, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention).

Bythoscopus viridis Walker, Homop. iv, p. 1162, 1852.
Hab.—Canada, New York, Maryland, Iowa, Colorado, Kansas.

Pediopsis occidentalis Van Duzee, Psyche v, p. 238, 1889.

Hab.—California.

Pediopsis sordida Van Duzee, Can. Ent. xxvi, p. 89, 1894.

Hab.—Colorado.

Pediopsis basalis Van Duzee, Ent. Am. v, p. 171, 1889. Prov., Pet. Faune Ent. Can. iii, p. 295, 1890.

Hab.—Canada.

Pediopsis ferriginoides Van Duzee, Ent. Am. v, p. 171, 1889.

Hab.—Montana.

Pediopsis insignis Van Duzee, Ent. Am. v, p. 171, 1889; Can. Ent. xxii, p. 249, 1890 (mention). Prov., Pet. Faune Ent. Can. iii, p. 295, 1890. Harrington. Ottawa Nat. vi, p. 31, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention).

Hab.—Canada, New York, Michigan, Iowa, Kansas.

Pediopsis tristis Van Duzee, Can. Ent. xxii, p. 249, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention).

Pediopsis trimaculata Fitch, Homop. N. Y. State Cab. p. 60, 1851; id. reprint in Lintner's 9th Rept. 400, 1893. Van Duzee, Ent. Am. v, p. 172, 1889; Psyche, v, p. 388, 1890 (mention). Harrington, Ottawa Nat. vi, p. 31, 1892.

Bythoscopus trimaculatus Walk., Homop. iv, p. 1162, 1852.

Hab.—Canada, New York.

Pediopsis bifasciata Van Duzee, Ent. Am. v, p. 173, 1889.

Hab.—Canada.

Pediopsis canadensis Van D.

Pediopsis flavescens Van Duzee, Ent. Am. v, p. 173, 1889.

Pediopsis canadensis Van Duzee, Can. Ent. xxii, p. 111, 1890.

Hab.—Canada, New York.

Pediopsis nubila Van Duzee, Ent. Am. vi, p. 37, 1890.

Hab.—California.

Pediopsis punctifrons Van Duzee, Ent. Am. v, p. 174, 1889.

Hab.—Arizona.

Genus IDIOCERUS Lewis.

Lewis, Trans. Ent. Soc. Lond. i, p. 47, 1836. Burm., Gen. Ins. i, pl. 10, *Bythoscopus*, 1840. Am. and Serv., Hemip. p. 585, 1843 (notice). Fieb., Verh. zool.-bot. Gesell. Wien, xviii, p. 450, 1868. Kirschb., Der Gatt. Idiocerus pp. 3 and 4, 1868; Cicad. v. Wiesbd. pp. 16, 152, 1868. Sahlbg., Cicad. pp. 69, 137, 1871. Fieb., Cicad. d'Europ. i, p. 100, pl. 11, figs. 39, 40, 1875; and ii,

pl. 9, 1876. Mayr, Tabellen, p. 26, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 114, pl. 2, fig. 4. Ashmead, Ent. Am. v, p. 126, 1889. Van Duzee, Ent. Am. v, p. 166, 1889. Prov., Pet. Faune Ent. Can. iii, p. 291, 1890.

Idiocerus amœmus Van Duzee, Can. Ent. xxvi, p. 89, 1894.

Hab.—Colorado, California.

Idiocerus pallidus Fitch, Homop. N. Y. State Cab. p. 59, 1851; id. reprint in Lintner's 9th Rept. p. 399, 1893. Van Duzee, Can. Ent. xxi, p. 8, 1889 (mention); Psyche v, p. 388, 1890 (mention). Prov., Pet. Faune Ent. Can. iii, p. 291, 1890. Harrington, Ottawa Nat. vi, p. 31, 1892 (mention).

Bythoscopus pallidus Walker, Homop. iv, p. 1162, 1852 (mention). Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 359, 1876; Bull. U. S. Geol. and Geog. Surv. iii, p. 465, 1877.

? Idiocerus unicolor? Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Canada, New York west to Colorado.

Idiocerus suturalis Fitch, Homop. N. Y. State Cab. p. 59, 1851; id. reprint in Lintner's 9th Rept. p. 399, 1893. Van Duzee, Can. Ent. xxi, p. 8, 1889 (mention); Psyche v, p. 388, 1890 (mention).

Bythoscopus suturalis Walk., Homop. iv, p. 1162, 1852 (mention).

Hab.—Canada, New York, Michigan, Colorado.

? Idiocerus obsoletus (Walk.)

Bythoscopus obsoletus Walk., Homop. iii, p. 873, 1851.

Hab.—"Hudson's Bay."

Idiocerus nervatus Van Duzee, Bull Buff. Soc. Nat. Sci. v, pt. 4, 1894 (No. 1).

Hab.—New York, New Jersey, Michigan, Colorado.

Idiocerus duzei Prov., Pet. Faune Ent. Can. iii, p. 292, 1890.

Hab.—Quebec, New Hampshire.

Idiocerus lachrymalis Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Van Duzee, Can. Ent. xxi, p. 8, 1889 (mention); Psyche v, p. 388, 1890 (mention).

Bythoscopus lachrymalis Walk., Homop. iv, p. 1161, 1851 (mention).

Hab.—Canada, New York, New Hampshire, Colorado.

? Idiocerus verticis (Say).

Jassus verticis Say, Jour. Acad. Nat. Sci. Phila. vi, p. 308, 1831. Say, id. reprint in Compl. Writings, ii, p. 383, 1869. Walker, Homop. iv, p. 1164, 1852 (mention).

Bythoscopus verticis Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 465, 1877.

Idiocerus verticis Van Duzee, Psyche v, p. 389, 1890 (mention). Prov., Pet. Faune Ent. Can. iii, p. 292, 1890. Harrington, Ottawa Nat. vi, p. 31, 1892 (mention).

Hab.—Missouri, Colorado.

Idiocerus alternatus Fitch, Homop. N. Y. State Cab. p. 59, 1851; id. reprint in Lintner's 9th Rept. p. 399, 1893. Van Duzee, Can. Ent. xxi, p. 8, 1889 (mention); Psyche v, p. 388, 1890 (mention). Prov., Pet. Faune Ent. Can. iii, p. 293, 1890. Harrington, Ottawa, Nat. vi, p. 31, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention). Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893 (mention). Harrington, Can. Ent. xxvi, p 16, 1894 (mention).

Bythoscopus alternatus Walk., Homop. iii, p. 876, 1851 (mention).

Hab.—Canada, New York to Iowa and Colorado and California.

Idiocerus ramentosus (Uhler).

Bythoscopus ramentosus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 465, 1877.

Idiocerus ramentosus Van D., Psyche v, p. 389, 1890.

Idiocerus inscriptus Uhler, in litt.

Hab.—Colorado, Arizona, Vancouver Island.

Idiocerus striola Fieb., Verh. zool.-bot. Gesell. Wien, xviii, p. 453, 1868.

Hab.—"Sitka."

Idiocerus cratægi Van Duzee, Can. Ent. xxii, p. 110, 1890.

Hab.—Canada, New York.

Idiocerus maculipennis Fitch, Homop. N. Y. State Cab. p. 59, 1851; id. reprint in Lintner's 9th Rept. p. 399, 1893. Van Duzee, Psyche v, p. 388, 1890 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention).

Bythoscopus maculipennis Walk., Homop. iv, p. 1161, 1852 (mention).

Hab.—New York, Iowa, Ontario.

Idiocerus provancheri Van D.

Bythoscopus clitellarius Prov., Pet. Faune Ent. Can. iii, p. 288, 1890.

Idiocerus provancheri Van D., Can. Ent. xxii, p. 111, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention).

Hab.—Canada, New York, Iowa.

Genus AGALLIA Curtis.

Curtis, Ent. Mag. i, p. 193, 1833. Kirschb., Der Gatt. Idiocerus p. 3, 1868; Cicad. v. Wiesbd. p. 16, 1868. Fieb., Verh. zool.-bot. Gesell. Wien, xviii, pp. 450, 462. 1868; Cicad. d'Europ. i. p. 103, 1875; ii, pl. 9, 1876. Mayr, Tabellen p. 27, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 125, pl. 11, fig. 5. Ashmead, Ent. Am. v, p. 126, 1889. Van Duzee, Ent. Am. v, p. 166, 1889. Prov., Pet. Faune Ent. Can. iii, p. 296, 1890.

Agallia 4-punctata (Prov.).

Bythoscopus 4-punctatus Prov., Nat. Can. iv, p. 376, 1872.

Agallia 4-punctata Van Duzee, Ent. Am. v, p. 167, 1889. Prov., Pet. Faune Ent. Can. iii, p. 296, 1890. Smith, Spec. Bull. K. N. J. Ag. Exp. Station p. 42, 1890; Ent. Am. vi, p. 135 (fig. on p. 133), 1890 (mention); Cat.

Ins. of N. J., p. 445, 1890 (mention). Harrington, Ottawa Nat. vi, p. 31, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention). Townsend, Can. Ent. xxiv, p. 196, 1892 (mention). Weed, H. E., Can. Ent. xxiv, p. 278, 1892 (mention).

Agallia flaccida Uhler MS. Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention).

Hab.—Canada, New York and New Jersey, west to Iowa.

Agallia sanguinolenta (Prov.).

Bythoscopus sanguinolentus Prov., Nat. Can. iv, p. 376, 1872.

Agallia sanguinolenta Van D., Ent. Am. v, p. 166, 1889. Prov., Pet. Faune Ent. Can. iii, p. 296, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention); Bull. 15, Iowa Ag. Exp. Station, pp. 258, 270, 1891; Rept. Iowa State Ag. Soc. 1892, p. 688; Papers on Iowa Ins. p. 56, Insect Life v, p. 113, 1892.

Bythoscopus siccifolius Uhler, Bull. U. S. Geol. and Geol. Survey ii, p. 359, 1876. Uhler, Wheeler's Chief of Eng. for 1877, p. 1334 (mention).

Agallia siccifolia Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention). Brunner, Dept. of Ag. Div. of Ent. Bull. 23, p. 16, 1892 (mention).

Hab.—Canada, New England west to Iowa, New Mexico British Columbia and California.

Agallia constricta Van Duzee, Can. Ent. xxvi, p. 90, 1894.

Hab.—New Jersey to Florida and Mississippi.

Agallia uhleri Van Duzee, Can. Ent. xxvi, p. 91, 1894.

Agallia venata, enervis and *longula* Uhler, in litt.

Hab.—Colorado, Arizona, California.

Agallia novella (Say).

Jassus novellus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 309, 1831. Say, id. reprint in Compl. Writings ii, p. 384, 1869. Harris, Hitchcock's Geol. of Mass. 2d ed. p. 580, 1835 (mention). Walker, Homop. iv, p. 1164, 1852 (mention).

Agallia novellus Van Duzee, Can. Ent. xxi, p. 8, 1889 (mention). Van Duzee, Psyche v, p. 389, 1890 (mention).

Agallia novella Harrington, Ottawa Nat. vi, p. 31, 1892 (mention). Harrington, Can. Ent. xxvi, p. 16, 1894 (mention).

Idiocerus novelius Prov., Pet. Faune Ent. Can. iii, p. 293, 1890.

Macropsis nobilis Forbes, Fourteenth Rept. Ill. State Ent. p. 22, 1884.

Hab.—Canada, New York, Mississippi, Indiana, Kansas, Colorado.

Agallia oculata Van Duzee, Ent. Am. vi, p. 38, 1890.

Hab.—California, Ontario (?).

Family TETTIGONIDÆ.

Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 357, 1876. Mayr, Tabellen, p. 28, 1884, (unterfam.). Osborn, Ent. Am. i, p. 26, 1885. Edwards, Trans. Ent. Soc. Lond. 1886, p. 45. Harrington, Ottawa Nat. vi, p. 31, 1892. Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892.

Tettigoninæ Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 459, 1877 (subfamily). Woodworth, Bull. Ill. State Lab. of Nat. Hist. iii, p. 14, 1887 (subfamily).
Tettigonini Puton, Cat. Hemip. Palæ. p. 79, 1886 (tribe).
Tettigonides Prov., Pet. Faune, Ent. Can. iii, p. 260, 1889.

Subfamily TETTIGONIINA.

Tettigonides Am. and Serv., Hemip. p. 569, 1843 (groupe). Walker, Homop. iii, p. 732, 1851 (group). Sahlbg., Cicad. p. 67, 1871 (tribe). Sign., Ann. Soc. Ent. Fr., ser. 5, ix, p. 45, 1879.
Tettigonidæ Dohrn, Catalogus Hemip. p. 88, 1859. Fieb., Cicad. d'Europ. i, p. 106, 1875 (subfamily).
Proconiida Stal, Hemip. Fab. ii, p. 79, 1869.
Proconiina Stal, Of. Vet. Akad. Forh. xxvii, p. 733, 1871 (subfamily).
Tettigoniæ Fieb., Kat. Europ. Cicad. p. 9, 1872.
Tettigoniina Berg, Hemip. Argent. p. 249, 1879. Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892.
Proconina Woodw., Bull. Ill. State Lab. Nat. Hist. iii, p. 14, 1887.

Genus DIESTOSTEMMA Am. and Serv.

Am. and Serv., Hemip. p. 572, 1843. Walker, Homop. p. 798, 1851 (mention). Stal, Hemip. Fab. ii, p. 60, 1869.

Diestostemma rugicollis (Sign.).

Tettigonia rugicollis Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 525, pl. 21, fig. 18, 1855. Uhler, Proc. Bost. Soc. Nat. Hist. xii, p. 327, 1869.
Diestostemma rugicollis Walk., Homop. Suppl. p. 241, 1858. Stal, Stet. Ent. Zeit. xxv, p. 81, 1864.

Hab.—Mexico.

Diestostemma nigropunctata (Sign.).

Tettigonia nigropunctata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 527, 1855.
Diestostemma nigropunctata Walk., Homop. Suppl. p. 240, 1858. Stal, Stet. Ent. Zeit. xxv, p. 81, 1864.

Hab.—Mexico.

Genus ACROBELUS Stal.

Stal, Hemip. Fab. ii. p. 60, 1869.

Acrobelus reflexa (Sign.).

Tettigonia reflexa Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 524, pl. 21, fig. 15, 1855.
Acrobelus reflexa Stal, Hemip. Fab. ii, p. 60, 1869.
Rhaphidorhinus attennatus Walk., Homop. iii, p. 806, 1851. See Walker, Homop. Suppl. p. 247, 1858.

Hab.—West coast.

Genus ONCOMETOPIA Stal.

Stal, Hemip. Fab. ii, pp. 60, 62, 1869. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 14, 1887.

Proconia Am. and Serv., Hemip. p. 571 (nec. Lep. and Serv.) 1843. Prov., Pet. Faune Ent. Can. iii, p. 264, 1889.

Tettigonia Groupe I, ser. 3, Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 357, 1854.

Oncometopia undata (Fabr.).

Cicada undata Fabr., Ent. Syst. iv, p. 32, 1794; and Suppl. p. 516, 1798. Fabr., Syst. Rhyng. p. 62, 1803. Coquerb., Ill. i, p. 32, tab. 8, fig. 3. Blanch., Hist. Nat. Ins. iii, p. 192, 1840.

Tettigonia undata Germ., Mag. d. Ent. iv, p. 61, 1821. Burm., Handb. d. Ent. ii, 1, p. 119, 1835 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 486, 1854, pl. 17, fig. 5.

Proconia undata Walker, Homop. iii, p. 783, 1851; Suppl. p. 225, 1858. Riley, Am. Ent. i, p. 19, 1869. Glover, Rept. Dept. Ag. for 1876, p. 31. Saunders, Ins. Inj. to Fruit, p. 289, 1883. Uhler, Stand. Nat. Hist. ii, p. 248, 1884. Prov., Pet. Faune Ent. Can. iii, p. 265, 1889. See also Insect Life, i, p. 54; ii, pp. 161, 283, 321; v, p. 151 (noticed).

Oncometopia undata Stal, Hemip. Fab. ii, p. 62, 1869. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 15, pl. 2, figs. 10–14, 1887. Smith, Cat. Ins. of N. J. p. 444, 1890 (mention). Harrington, Ottawa Nat. vi, p. 31, 1892.

Proconia nigricans Walk., Homop. iii, p. 783, 1851.

Proconia tenebrosa Walk., Homop. iii, p. 787, 1851.

Proconia plagiata Walk., Homop. iii, p. 788, 1851.

Hab.—New Jersey to Michigan and south to Florida and Mexico.

Oncometopia orbona (Fabr.).

Cicada orbona Fabr., Ent. Syst. Suppl. p. 520, 1798. Fabr., Syst. Rhyng. p. 72, 1803.

Tettigonia orbona Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 485, 1854, pl. 17, fig. 3.

Proconia orbona Walker, Homop. Suppl. p. 225, 1858.

Hab.—Southern States.

Oncometopia costalis (Fabr.).

Cercopis lateralis Fabr., Ent. Syst. Suppl. p. 524, 1798. Coquerb., Ill., i, p. 35, pl. 9, fig. 3.

Cercopis marginella Fabr., Syst. Rhyng. p. 96, 1803. Kirby, Fauna Boreali Am. p. 285, 1837. Kirby, reprint in Can. Ent. x, p. 216, 1878.

Cercopis costalis Fabr., Syst. Rhyng. Errata following p. 314, 1803.

Tettigonia costalis Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 359, pl. 12, fig. 8, 1854.

Proconia costalis Walker, Homop. Suppl. p. 224, 1858. Uhler, Geol. and Geog. Surv. west of 100th mer., Wheeler, v, p. 842, 1875; Bull. U. S. Geol. and Geog. Surv. ii, p. 357, 1876; iii, p. 459, 1877; iv, p. 510, 1878; Rept. Chief of Eng. for 1877, p. 1334; Stand., Nat. Hist. ii, p. 249, 1884. Prov., Pet. Faune Ent. Can. iii, p. 265, 1889. Ashm., in Smith's Cat. Ins. of N. J. p. 444, 1890 (reference). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892 (mention). Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893 (mention).

Oncometopia costalis Stal, Hemip. Fab. ii, p. 118, 1869. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 17, 1887. Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention). Harrington, Ottawa Nat. vi, p. 31, 1892 (mention). Slosson, Ent. News v, p. 5, 1894 (mention). Van Duzee, Ent. News v, p. 156, 1894 (reference).

Tettigonia lugens Walker, Homop. iii, p. 775, 1851.
Tettigonia pyrrhotelus Walker, Homop. iii, p. 775, 1851.
? Tettigonia striata Walker, Homop. iii, p. 775, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 682, 1853 (is this Walker's species?). Van Duzee, Ent. News v, p. 156, 1894 (reference).

Hab.—Canada, United States west to Rocky Mountains.

Oncometopia limbata (Say).

Tettigonia limbata Say, Jour. Acad. Nat. Sci. Phila. iv, p. 340, 1825. Say, id. reprint in Compl. Writings ii, p. 258, 1869. Walker, Homop. iv, p. 1157, 1852. ?Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 821, 1855. Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893.
Oncometopia limbata Van D., Psyche v, p. 389, 1890.

Hab.—Michigan, Dakota, Missouri, Colorado.

Oncometopia obtusa (Fabr.).

Cicada obtusa Fabr., Mantissa Ins. p. 269, 1787; Ent. Syst. iv, p. 33, 1794; Syst. Rhyng. p. 62, 1803.
Tettigonia obtusa Germ., Mag. der Ent. iv, p. 62, 1821. Burm., Handb. der Ent. ii, 1, p. 118, 1835. Sign., Ann. Soc. Ent. Fr, ser. 3, ii, p. 488, pl. 17, fig. 6, 1854. Stal, Rio Janeiro Hemip. ii, p. 43, 1862.
Proconia obtusa Am. and Serv., Hemip. p. 571, 1843. Walker, Homop. iii, p. 782, 1851, and Suppl. p. 225, 1858.
Oncometopia obtusa Stal, Hemip. Fab. ii, p. 62, 1869.
Proconia clarior Walker, Homop. iii, p. 784, 1851.
Proconia parallela Walker, Homop. iii, p. 788, 1851.

Hab.—Mexico to South America.

Genus PHERA Stal.

Stal., Stet. Ent. Zeit. xxv, p. 77, 1864; Hemip. Fab. ii, p. 60, 1869.

Phera tiarata Stal, Stet. Ent. Zeit. xxv, p. 79, 1864; Hemip. Fabr. ii, p. 60, 1869 (reference).

Hab.—Mexico.

Phera wallengreni Stal, Stet. Ent. Zeit. xxv, p. 78, 1864; Hemip. Fabr. ii, p. 60, 1869 (reference).

Hab.—Mexico.

Phera centrolineata (Sign.).

Tettigonia centrolineata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 239, pl. 12, fig. 19, 1859.
Cicens centrolineatus Walker, Homop. Suppl. p. 242, 1858.
Phera centrolineata Stal, Stet. Ent. Zeit. xxv, p. 78, 1864. Stal, Hemip. Fabr. ii, p. 60, 1869.

Hab.—Mexico.

Phera tartarea Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.

Hab.—Mexico.

Phera luciola (Sign.).

Tettigonia luciola Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 239, pl. 12, fig. 18, 1855.

Ciccus luciola Walker, Homop. Suppl. p. 243, 1858.

Phera luciola Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.

Hab.—Mexico.

Phera bimaculata (Sign.).

Tettigonia bimaculata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 362, pl. 12, fig. 12, 1854.

Proconia bimaculata Walker, Homop. Suppl. p. 225, 1858.

Phera bimaculata Stal, Stet. Ent. Zeit. xxv, p. 77, 1864.

Hab.—Mexico.

Phera marginata (Walker).

Proconia marginata Walker, Homop. iii, p. 785, 1851. Walker, Homop. Suppl. p. 225, 1858 (notice).

Tettigonia marginata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 487, 1854.

Phera marginata Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.

Hab.—Florida, Mexico.

? Phera rufipennis (Sign.).

Tettigonia rufipennis Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 797, 1855. Walk., Homop. Suppl. p. 350, 1858.

Hab.—Mexico.

? Phera funebris (Sign.).

Tettigonia funebris Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 490, 1854.

Proconia funebris Walker, Homop. Suppl. p. 225, 1858.

Hab.—Mexico, California.

? Phera rubiginosa (Sign.).

Tettigonia rubiginosa Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 491, pl. 17, fig. 7, 1854.

Proconia rubiginosa Walker, Homop. Suppl. p. 226, 1858.

Hab.—Mexico.

Phera atra (Walk.).

Proconia atra Walker, Homop. iii, p. 789, 1851; and Suppl. p. 226, 1858. Wood, Insects Abroad p. 743, fig. 486, n. d.

Tettigonia atra Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 492, pl. 17, fig. 9, 1854.

Phera atra Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.

var. contraria Walker.

Proconia contraria Walker, Homop. iii, p. 789, 1851.

Hab.—Mexico, West Indies.

(NOTE.—This species and the preceding may belong to *Cyrtodisca* Stal.)

Genus CYRTODISCA Stal.

Stal, Hemip. Fab. ii, p. 60, 1869.

Cyrtodisca major (Sign.).

Tettigonia major Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 491, pl. 17, fig. 8, 1854.
Proconia major Walker, Homop. Suppl. p. 229, 1858.
Phera major Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.
Cyrtodisca major Stal, Hemip. Fab. ii, p. 60, 1869.
Proconia scissa Walker, Homop. Suppl. p. 226, 1858. See Stal, Of. Vet. Ak. Forh. xix, p. 496, 1862.

Hab.—Mexico, Guat.

Genus HOMALODISCA Stal.

Stal, Hemip. Fab. ii, pp. 60 and 63, 1869.

Homalodisca triquetra (Fabr.).

Cicada triquetra Fabr., Syst. Rhyng. p. 63, 1803.
Tettigonia triquetra Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 240, 1855.
Ciccus triquetra Walker, Homop. Suppl. p. 243, 1858.
Homalodisca triquetra Stal, Hemip. Fab. ii, p. 64, 1869. Weed, H. E., Can. Ent. xxiv, p. 278, 1892.
Tettigonia vitripennis Germ., Mag. der Ent. iv, p. 61, 1821. Burm., Handb. der Ent. ii, p. 120, 1835 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 493, pl. 17, fig. 10, 1854.
Ciccus vitripennis Walker, Homop. iii, p. 799, 1851.
Proconia vitripennis Walker, Homop. Suppl. p. 225, 1858.

Hab.—California, Mexico, Texas.

Homalodisca coagulata (Say).

Tettigonia coagulata Say, Insects of Louisiana p. 13, 1832. Say, id. reprint in Compl. Writings i, p. 307, 1869.
Phera coagulata Stal, Stet. Ent. Zeit. xxv, p. 78, 1864.
Homalodisca coagulata Stal, Hemip. Fab. ii, p. 64, 1869. Riley and Howard, Insect Life v, p. 150–154, 1893.

Hab.—Southern States to Mexico and California.

Homalodisca admittens (Walker).

Proconia admittens Walk., Homop. Suppl. p. 227, 1858.
Homalodisca admittens Stal, Hemip. Fab. ii, p. 64, 1869.
Proconia aurigena Walker, Homop. Suppl. p. 228, 1858. See Stal, Of. Vet. Ak. Forh. xix, p. 496, 1862.

Hab.—Mexico.

Genus AMBLYDISCA Stal.

Stal, Hemip. Fabr. ii, p. 61, 1869.

Amblydisca rubriventris (Sign.).

Tettigonia rubriventris Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 52, pl. 6, fig. 5, 1855. Walker, Homop. Suppl. p. 349, 1858.
Aulacizes rubriventris Stal, Stet. Ent. Zeit. xxv, p. 80, 1864.

Amblydisca rubriventris Stal, Hemip. Fab. ii, p. 61, 1869.

Aulacizes stellaris Walker, Homop. Suppl. p. 238, 1858. See Stal, Of. Vet. Ak. Forh. xix, p. 496, 1862.

Hab.—Mexico.

Amblydisca coriacea Stal.

Aulacizes coriacea Stal, Stet. Ent. Zeit. xxv, p. 80, 1864.

Amblydisca coriacea Stal, Hemip. Fab. ii, p. 61, 1869.

Hab.—Mexico.

Amblydisca multiguttata Stal.

Aulacizes multiguttata Stal, Stet. Ent. Zeit. xxv, p. 80, 1864.

Amblydisca multiguttata Stal, Hemip. Fab. ii, p. 61, 1869.

Hab.—Mexico.

Amblydisca nitidipennis Stal.

Aulacizes nitidipennis Stal, Stet. Ent. Zeit. xxv, p. 79, 1864.

Amblydisca nitidipennis Stal, Hemip. Fab. ii, p. 61, 1869.

Hab.—Mexico.

Genus AULACIZES Am. and Serv.

Am. and Serv., Hemip. p. 571, 1843. Walker, Homop. iii, p. 790, 1851. Stal, Hemip. Fab. ii, p. 61, 1869. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 18, 1887. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 731, 1854 (*Tettigonia*, 2d group).

Aulacizes irrorata (Fabr.).

Cicada irrorata Fabr., Ent. Syst. iv, p. 33, 1794. Fabr., Syst. Rhyng. p. 62, 1803. Coquerb., Ill. Ins. i, p. 32, tab. 8, fig. 4, 1799.

Tettigonia irrorata Burm., Handb. d. Ent. ii, 1, p. 119, 1835. Blanch., Hist. Nat. des Ins. iii, p. 192, 1840. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 59, pl. 6, fig. 14, 1855.

Aulacizes irrorata Walker, Homop. Suppl. p. 236, 1858. Stal, Hemip. Fab. ii, p. 64, 1869. Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 357, 1876. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 19, pl. 2, figs. 15–18, 1887.

Aulacizes rufiventris Walker, Homop. iii, p. 796, 1851; and Suppl. p. 236, 1858.

Cicada nigripennis Fabr., Ent. Syst. iv, p. 32, 1794. Fabr., Syst. Rhyng. p. 69, 1803.

Proconia? nigripennis Walker, Homop. iii, p. 783, 1851.

Tettigonia nigripennis Burm., Handb. d. Ent. ii, 1, p. 119, 1835. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 491, 1854.

Hab.—New Jersey to Florida and west to Illinois and Texas.

Aulacizes guttata (Sign.).

Tettigonia guttata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 355, pl. 12, fig. 1, 1854. Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Aulacizes guttata Uhler, Stand. Nat. Hist. ii, p. 248, 1884.

Hab.—New York and Ohio to Florida and Mexico.

Aulacizes confusa (Sign.).

Tettigonia confusa Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 58, pl. 6, fig. 12, 1855.
Aulacizes confusa Walker, Homop. Suppl. p. 236, 1858.

Hab.—Mexico.

Aulacizes mutans (Sign.).

Tettigonia mutans Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 228, pl. 12, fig. 3, 1855.
Aulacizes mutans Walker, Homop. Suppl. p. 237, 1858. Stal, Stet. Ent. Zeit. xxv, p. 81, 1864.

Hab.—Mexico.

Aulacizes aurantiacea (Sign.).

Tettigonia aurantiacea Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 225, pl. 6, fig. 17, 1855.
Ciccus aurantiacea Walker, Homop. Suppl. p. 242, 1858.
Aulacizes aurantiacea Stal, Stet. Ent. Zeit. xxv, p. 79, 1864.
Ciccus ochraceus Walker, Homop. Suppl. p. 244, 1858. See Stal, Of. Vet. Ak. Forh. xix, p. 496, 1862.

Hab.—Mexico.

Aulacizes thunbergi Stal, Stet. Ent. Zeit. xxv, p. 79, 1864.

Hab.—Mexico.

Genus PROCONIA Auct.

? Proconia consistens Walker, Homop. Suppl. p. 226, 1858.

Aulacizes obliqua Walker, Homop. Suppl. p. 239, 1858. See Stal, Of. Vet. Ak. Forh. xix, p. 496, 1862.

Hab.—Mexico.

? Proconia insoleta Walker, Homop. Suppl. p. 227, 1858.

Hab.—Mexico.

? Proconia confluens Uhler, Proc. Acad. Nat. Sci. Phila. for 1861, p. 285.

Hab.—Washington, Arizona.

Genus DILOBOPTERUS Sign.

Sign., Revue et Mag. Zool. ser. 2, ii, p. 284, 1850. Walker, Homop. iii, p. 808, 1851 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 26, 1853. Stal, Hemip. Fab. ii, p. 70, 1869 (subgenus).

Dilobopterus burmeisteri Sign., Revue et Mag. Zool. ser. 2, ii, p. 286, pl. 4, fig. 5, 1850. Walker, Homop. iii, p. 808, 1851.

Tettigonia burmeisteri Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 28, pl. 2, fig. 3, 1853. Stal, Stet. Ent. Zeit. xxv, p. 73, 1864.

Hab.—Mexico.

Genus PŒCILOSCARTA Stal.

Stal, Hemip. Fab. ii, p. 73, 1869 (subgenus).

Pœciloscarta lyncea (Fabr.).

Cicada lyncea Fabr., Mantissa Ins. ii, p. 269, 1787.

Tettigonia lyncea Stal, Hemip. Fab. ii, p. 75, 1869 (subgenus *Pœciloscarta*).

Cicada myopa Fabr., Ent. Syst. iv, p. 33, 1794. Fabr., Syst. Rhyng. p. 73, 1803.

Tettigonia myopa Sign., Ann. Soc. Ent. Fr. ser. 8, i, p. 31, 1853. Walker, Homop. Suppl. p. 199, 1858 (mention).

Tettigonia cyanescens Walker, Homop. iii, p. 760, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 355, pl. 12, fig. 5, 1851. See Stal, Hemip. Fab. ii, p. 76, 1869.

Hab.—Mexico, etc.

Pœciloscarta histrio (Fabr.).

Cicada histrio Fabr., Ent. Syst. iv, p. 34, 1794; Syst., Rhyng. p. 73, 1803.

Tettigonia histrio Stal, Hemip. Fab. ii, p. 76, 1869 (subgenus *Pœciloscarta*).

Tettigonia robusta Walker, Homop. iii, p. 777, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 10, pl. 1, fig. 9, 1854. Johnson and Fox, Ent. News iii, p. 60, 1892. Van Duzee, Ent. News v, p. 157, 1894.

Hab.—West Indies.

Genus TETTIGONIA Geoff.

Geoffrey, Hist. des Ins. i, p. 429, 1764. Latr., Regne Anim. iii, p. 428, 1817. Germ., Mag. d. Ent. iv, p. 57, 1821. Burm., Handb. der Ent. ii, 1, p. 117, 1835. Blanchard, Hist. des Ins. iii, p. 189, 1840. Am. and Serv., Hemip. p. 569, 1843. Walker, Homop. iii, p. 733, 1851 (reference). Sign., (1st Group, 2d ser.) Ann. Soc. Ent. Fr. ser. 3, i, p. 323, 1853. Stal, Rio Janeiro Hemip. ii, p. 38, 1862 (reference); Hemip. Af. iv, pp. 100, 115, 1866. Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 502, 1866. Kirschb., Cicad. v. Wiesbd, p. 15, 1868. Stal, Hemip. Fab. ii, pp. 61, 70, 1869. Sahlbg., Cicad. p. 104, 1871. Fieb., Cicad. d'Europ. i, p. 107, 1875. Berg, Hemip. Argent. p. 250, 1879. Mayr, Tabellen p. 29, 1884. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 20, 1887. Edwards, Trans. Ent. Soc. Lond. 1888, p. 15. Prov., Pet. Faune. Ent. Can. iii, p. 262, 1889.

Cicada Fabr., Ent. Syst. iv, p. 27, 1794; Syst. Rhyng. p. 61, 1803.
Cicadella Gray, Griffith's Anim. Kingd. xv, p. 226, 1832.

Tettigonia multivergata Stal, Stet. Ent. Zeit. xxv, p. 73, 1864.

Hab.—Mexico.

Tettigonia ruficeps Stal, Stet. Ent. Zeit. xxv, p. 73, 1864.

Hab.—Mexico.

Tettigonia æstuans Walk., Homop. iii, p. 750, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 331, pl. 8, fig. 9, 1853.

Hab.—California, Mexico.

Tettigonia punctulata Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 345, pl. 9, fig. 15, 1853. Walker, Homop. Suppl. p. 194, 1858 (mention).

Hab.—Mexico.

Tettigonia areolata Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 355, pl. 11, fig. 4, 1853. Walker, Homop. Suppl. p. 194, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864 (mention).

Hab.—Mexico.

Tettigonia jucunda Walker, Homop. iii, p. 757, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 355, pl. 11, fig. 5, 1853. Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico, Honduras.

Tettigonia 4-plagiata Walk., Homop. iii, p. 774, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, i, 358, pl. 11, fig. 8, 1853.

Hab.—California (?), Mexico.

Tettigonia pulchella Guer., Icones Reg. Anim. Ins. p. 369, pl. 59, fig. 10. Walker, Homop. iii, p. 736, 1851 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 360, pl. 11, fig. 11, 1853. Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia proxima Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 361, pl. 11, fig. 12, 1853. Walker, Homop. Suppl. p. 206, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia multicolor Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 363, pl. 11, fig. 15, 1853. Walker, Homop. Suppl. p. 193, 1858. Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia cosmopolita Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 364, pl. 11, fig. 16, 1853. Walker, Homop. Suppl. p. 193, 1858 (mention). Stal, Hemip. Af. iv, p. 115, 1866.

Hab.—Mexico, etc.

Tettigonia sanguinicollis Latr., Voy. du Humboldt i, p. 191, pl. 17, fig. 11; id. reprint in Germ. Mag. d. Ent. i, pt. 2, p. 119, Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 371, pl. 12, fig. 12, 1853. Walker, Homop. Suppl. p. 197, 1858.

Tettigonia farinaria Am. and Serv., Hemip. p. 570, pl. 10, fig. 11, 1843. Walk., Homop. iii, p. 733, 1851 (mention).

Hab.—Cuba.

Tettigonia sanguinea (Drury).

Cicada sanguinea Drury, Ill. Nat. Hist. Ins. ii, p. 78, pl. 38, fig. 5, 1773.

Tettigonia sanguinea Westw., in new ed. Drury's Ins. ii. p. 81, pl. 38, figs. 5, 6. 1837. Sign., Ann. Soc. Ent. Fr. ser. 3, i, p. 686, 1853. Walker, Homop. Suppl. p. 197, 1858.

Hab.—Jamaica.

Tettigonia bifida Say, Jour. Acad. Nat. Sci. Phila. iv, p. 313, 1831; id. reprint in Compl. Writings ii, p. 387, 1869. Fitch, Homop. N. Y. State Cab. p. 55, 1851; id. reprint in Lintner's 9th Rept. p. 395, 1893. Walk., Homop. iv, p. 1158, 1852, and Suppl. p. 192, 1858 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 11, pl. 1, fig. 11, 1854. Packard, Guide to Study of Insects p. 532, 1876 (mention). Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 27, 1887. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892 (mention). Southwick, Science, xix, p. 318, 1892 (mention).

Helochara bifida Prov., Pet. Faune Ent. Can. iii, p. 338, 1890.

Tettigonia tenella Walker, Homop. iii, p. 770, 1851. Van Duzee, Ent. News v, p. 156, 1894.

Hab.—Canada, New York to Maryland, west to Iowa.

Tettigonia interrupta Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 785, pl. 24, fig. 3. 1855. Walker, Homop. Suppl. p. 350, 1858.

Hab.—West Indies.

Tettigonia lugubris Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 13, pl. 1, fig. 13, 1854. Walker, Homop. Suppl. p. 194, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia similis Walker, Homop. iii, p. 769, 1851. Van Duzee, Ent. News v, p. 155, 1894 (reference).

Tettigonia herbida Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 18, pl. 2, fig. 4, 1854. Stal, Rio Janeiro Hemip. ii, p. 12, 1862. ?Johnson and Fox, Ent. News iii, p. 60, 1892.

Hab.—West Indies.

Tettigonia lineata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 21, pl. 2, fig. 9, 1854. Walker, Homop. Suppl. p. 193, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—"United States," Mexico.

Tettigonia reticulata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 22, pl. 2, fig. 10, 1854. Walker, Homop. Suppl. p. 198, 1858 (mention).

Hab.—Cuba.

Tettigonia nigrifascia Walker, Homop. iii, p. 776, 1851. Van Duzee, Ent. News v, p. 157, 1894.

Tettigonia tripunctata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 23, pl. 2, fig. 12, 1854. Walker, Homop. Suppl. p. 193, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Tettigonia pallida Walker, Homop. iii, p. 776, 1851. Van Duzee, Ent. News v, p. 157, 1894 (reference).

Tettigonia albida Walker, Homop. iii, p. 777, 1851. Van Duzee, Ent. News v, p. 157, 1894 (reference).

Hab.—Mexico.

Tettigonia tripunctata Fitch, Homop. N. Y. State Cab. p. 55, 1851; id. reprint in Lintner's 9th Rept. p. 395, 1893. Walker, Homop. iv, p. 1158, 1852 (mention). Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 28, 1887. Prov., Pet. Faune Ent. Can. iii, p. 263, 1889. Southwick, Science xix, p. 318, 1892 (mention). See Van Duzee, Ent. News v, p. 157, 1894.

Hab.—Canada, New York, New Hampshire, to Mississippi and Missouri.

Tettigonia uniguttata Walker, Homop. iii, p. 778, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 24, 1854. Van Duzee, Ent. News v, p. 157, 1894 (notice).

Hab.—Mexico.

Tettigonia sagata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 27, pl. 2, fig. 15, 1854. Walker, Homop. Suppl. p. 194, 1858 (mention). Stal, Rio Janeiro Hemip. ii, p. 42, 1862; Stet. Ent. Zeit. xxv, p. 74, 1864. Berg, Hemip. Argent. p. 254, 1879.

Hab.—Mexico, etc.

Tettigonia gothica Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 345, 1854. Walker, Homop. Suppl. p. 193, 1858.

Hab.—"United States."

Tettigonia hieroglyphica Say, Jour. Acad. Nat. Sci. Phila. vi, p. 313, 1831; id. reprint in Compl. Writings ii, p. 387, 1869. Harris, Hitchcock's Geol. of Mass. 2d ed. p. 580, 1835. Walker, Homop. iv, p. 1158, 1852, and Suppl. p. 349, 1858. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 805, 1855. Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876; iii, p. 460, 1877; iv, p. 510, 1878; Wheeler, Rept. Chief of Eng. for 1877, p. 1334. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 26, 1887. Osborn, Dept. of Ag., Div. of Ent. Bull. 22, p. 28, 1890; Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892 (mention). Harrington, Ottawa Nat. vi, p. 32, 1892 (mention); Can. Ent. xxvi, p. 16, 1894 (mention).

Diedrocephala hieroglyphica Prov., Pet. Faune Ent. Can. iii, p. 267, 1889.

Hab.—Canada, United States.

Tettigonia similis Woodw.

Tettigonia similis Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 25, 1887.

Hab.—Illinois.

Tettigonia intensa Walker, Homop. iii, p. 767, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 347, pl. 11, fig. 9, 1854.

Hab.—Jamaica.

Tettigonia lunata Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 349, pl. 11, fig. 13, 1854. Walker, Homop. Suppl. p. 194, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia urbana Stal, Stet. Ent. Zeit. xxv, p. 74, 1864.

Hab.—Mexico.

Tettigonia limbaticollis Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Hab.—Mexico.

Tettigonia occatoria Say, Jour. Acad. Nat. Sci. Phila. vi, p. 311, 1831; id. reprint in Compl. Writings ii, p. 385, 1869. Walker, Homop. iv, p. 1157, 1852 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 353, pl. 12, fig. 2, 1854. Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Hab.—Indiana, Mississippi, Mexico.

Tettigonia dohrni Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 792, pl. 24, fig. 13, 1855. Walk., Homop. Suppl. p. 350, 1858.

Hab.—Mexico.

Tettigonia speculifera Walker, Homop. iii, p. 790, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 483, pl. 17, fig. 1, 1854.

Hab.—Mexico.

Tettigonia nigroguttata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 772, pl. 23, fig. 8, 1855. Walker, Homop. Suppl. p. 349, 1858. Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Hab.—Mexico.

Tettigonia hilaris Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Hab.—Mexico.

Tettigonia venusta Stal, Stet. Ent. Zeit. xxv, p. 75, 1864.

Hab.—Mexico.

Tettigonia lucasii Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 778, pl. 23, fig. 16, 1855. Walker, Homop. Suppl. p. 353, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia 14-punctata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 782, pl. 23, fig. 19, 1855. Walker, Homop. Suppl. p. 349, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia stalii Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 787, pl. 24, fig. 5, 1855. Walker, Homop. Suppl. p. 350, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia blanchardii Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 788, pl. 24, fig. 6, 1855. Walker, Homop. Suppl. p. 355, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico, Guatemala.

Tettigonia mexicana Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 789, pl. 24, fig. 7, 1855. Walker, Homop. Suppl. p. 350, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia tessellata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 790, pl. 24, fig. 9, 1855. Walker, Homop. Suppl. p. 355, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia sirena Stal, Stet. Ent. Zeit. xxv, p. 76, 1864.

Hab.—Mexico.

Tettigonia magica Stal, Stet. Ent. Zeit. xxv, p. 77, 1864.

Hab.—Mexico.

Tettigonia flava Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 799, pl. 24, fig. 19, 1855. Walker, Homop. Suppl. p. 350, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 77, 1864.

Hab.—Mexico.

Tettigonia 6-lineata Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 792, pl. 24, fig. 12, 1855. Walker, Homop. Suppl. p. 355, 1858 (mention). Stal, Stet. Ent. Zeit. xxv, p. 77, 1864.

Hab.—Mexico, Guatemala.

Genus TETTIGONIA Auct.

? Tettigonia fasciata Walker, Homop. iii, p. 780, 1851.

Hab.—North America.

? Tettigonia septentrionalis Walker, Homop. Suppl. p. 193, 1858.

Hab.—Arctic America.

? Tettigonia 5-signata Walker, Homop. Suppl. p. 194, 1858.

Hab.—Mexico.

? Tettigonia metallescens Walker, Homop. Suppl. p. 195, 1858.

Hab.—Mexico.

? Tettigonia candida Walker, Homop. Suppl. p. 195, 1858.

Hab.—Mexico.

? Tettigonia granulata Walker, Homop. Suppl. p. 195, 1858.

Hab.—Mexico.

? Tettigonia ruficeps Walker, Homop. Suppl. p. 196, 1858.

Hab.—Mexico.

? Tettigonia detrahens Walker, Homop. Suppl. p. 196, 1858.

Hab.—Mexico.

? Tettigonia suavipennis Walker, Homop. Suppl. p. 196, 1858.

Hab.—Mexico.

? Tettigonia rufimargo Walker, Homop. Suppl. p. 197, 1858.

Hab.—Mexico.

? Tettigonia fausta Walker, Homop. Suppl. p. 198, 1858.

Hab.—St. Domingo.

? Tettigonia constans Walker, Homop. Suppl. p. 198, 1858.

Hab.—St. Domingo.

? Tettigonia tripartita Walker. Ins. Saund. Homop. p. 96, 1858.

Hab.—St. Domingo.

? Tettigonia viridis Fabr. Prov., Pet. Faune Ent. Can. iii, p. 263, 1889.

Hab.—Canada.

Genus CICCUS Auct.

? Ciccus nigraulax Walker, Homop. Suppl. p. 246, 1858.

Hab.—Mexico.

Genus DIEDROCEPHALA Spin.

Spinola Tav. Sinot. Mem. Soc. Stal, xxv, p. 57, 1852. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 721, 1854 (1st group, 4th series). Walker, Homop. Suppl. p. 233, 1858 (mention). Stal, Hemip. Fab. ii, p. 78, 1869 (subgenus). Uhler, Stand. Nat. Hist. ii, p. 249, 1884. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 22, 1877 (subgenus). Prov., Pet. Faune Ent. Can. iii, p. 265. 1889.

Diedrocephala versuta (Say).

Tettigonia versuta Say, Jour. Acad. Nat. Sci. Phil. vi, p. 311, 1831; id. reprint in Compl. Writings ii, p. 386, 1869. Walker, Homop. iv, p. 1157, 1852 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 348, pl. 11, fig. 10, 1854.

Diedrocephala versuta Woodw., Bull. Ill. Lab. Nat. Hist. iii, p. 22, 1887. Van Duzee, Psyche v, p. 390, 1890. Osborn, Dept. of Ag., Div. of Ent. Bull. 22, p. 27, 1890. Weed, H. E., Can. Ent. xxiv, p. 278, 1892.

Hab.—Southern States.

Diedrocephala coccinea (Forst.)

Cicada coccinea Forst., Nov. Species Ins. p. 96, 1781.

Tettigonia coccinea Harris, Hitchcock's Geol. of Mass. 2d ed. p. 580, 1835. Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 581, 1869.

Diedrocephala coccinea Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 357, 1876. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 23, 1887. Prov., Pet. Faune Ent. Can. iii, p. 267, 1889. Van Duzee, Can. Ent. xxi, p. 9, 1889. Osborn, Dept. of Ag., Div. of Ent. Bull. 22, p. 28, 1890; Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892 (mention). Southwick, Science xix, p. 318, 1892 (mention).

Tettigonia quadrivittata Say, Jour. Acad. Nat. Sci. Phila. vi, p. 312, 1831; id. reprint in Compl. Writings ii, p. 386, 1869. Harris, Hitchcock's Geol. of Mass. 2d ed. p. 580, 1835. Walker, Homop. iv, p. 1155, 1852 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 348, pl. 11, fig. 11, 1854. Rathvon, Mombert Hist. Lancaster Co., Pa., p. 581, 1869 (mention).

Proconia quadrivittata Fitch, Homop. N. Y. State Cab. p. 55, 1851; id. reprint in Lintner's 9th Rept. p. 395, 1893. Packard, Guide to Study of Ins. p. 532, 1876.

Aulacizes quadrivittata Fitch, Trans. N. Y. State Ag. Soc. xvi, p. 450, 1856.

Diedrocephala quadrivittata Glover, Rept. Dept. of Ag. for 1876, p. 33. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (var.).

Tettigonia teliformis Walker, Homop. iii, p. 764, 1851. Van Duzee, Ent. News v, p. 155, 1894 (reference).

Hab.—Canada, United States west to the Rocky Mountains.

Diedrocephala mollipes (Say).

Tettigonia mollipes Say, Jour. Acad. Nat. Sci. Phila. vi, p. 312, 1831; id. reprint in Compl. Writings ii, p. 386, 1869. Harris, Hitchcock's Geol. of Mass. 2d ed. p. 580, 1835 (*mellipes*). Walker, Homop. iv, p. 1156, 1852 (mention). Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 726, pl. 21, figs. 12, 13, 1854. Stal, Stet. Ent. Zeit. xxv, p. 77, 1864.

Aulacizes mollipes Fitch, Homop. N. Y. State Cab. p. 56, 1851; id. reprint in Lintner's 9th Rept. p. 396, 1893. Glover, Rept. Dept. of Ag. for 1876, p. 32. Packard, Guide to Study of Ins. p. 532, 1876.

Diedrocephala mollipes Walker, Homop. Suppl. p. 233, 1858. Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876; iii, p. 459, 1877; Stand., Nat. Hist. ii, p. 249, 1884. Woodw., Bull. Ill. State Lab. Nat. Hist. iii, p. 24, 1887 (*Tettigonia*). Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention). Smith, Cat. Ins. N. J. p. 444, 1890 (mention). Osborn, Dept. of Ag., Div.

of Ent. Bull. 22, p. 26, 1890; Bull. 30, p. 46, 1893; Rept. Iowa State Ag. Soc. for 1892, p. 687; Papers on Iowa Ins. p. 55; Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892 (mention). Harrington, Ottawa Nat. vi, p. 32, 1892 (mention). Southwick, Science xix, p. 318, 1892 (mention). Weed, H. E., Can. Ent. xxiv, p. 278, 1892 (mention). Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893 (mention).

? Tettigonia innotata Walker, Homop. iii, p. 770, 1851. Van Duzee, Ent. News v, p. 156, 1894.

? Tettigonia antica Walker, Homop. iii, p. 771, 1851. Van Duzee, Ent. News v, p. 156, 1894.

Tettigonia acuta Walker, Homop. iii, p. 773, 1851. Van Duzee, Ent. News v, p. 156, 1894.

Acopsis viridis Prov., Nat. Can. iv, p. 352, 1872; Pet. Faune Ent. Can. iii, p. 268, 1889.

Var. producta Walker.

? Tettigonia minor Walker, Homop. iii, p. 772, 1851.

Tettigonia producta Walker, Homop. iii, p. 772, 1851. Van Duzee, Ent. News v, p. 156, 1894.

Hab.—Canada, United States, Mexico, Cuba.

? Diedrocephala marginata (P. Beauv.).

Tettigonia marginata P. Beauv., Hemip. Recu. Af. et Am. p. 105, pl. 19, fig. 5, 1805. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 803, 1855. Walker, Homop. Suppl. p. 350, 1858 (mention).

Hab.—St. Domingo.

Diedrocephala angulifera (Walker).

Tettigonia angulifera Walker, Homop. iii, p. 771, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 727, pl. 21, fig. 14, 1851.

Diedrocephala sp., Southwick, Science xix, p. 318, 1892.

Diedrocephala angulifera Van Duzee, Ent. News v, p. 156, 1894.

Hab.—Canada, New York, Kansas.

Diedrocephala novæboracensis (Fitch).

Antacizes novæboracensis Fitch, Homop. N. Y. State Cab. p. 56, 1851; id. reprint in Lintner's 9th Rept. p. 396, 1893.

Tettigonia novæboracensis Walk., Homop. iv, p. 1158, 1852; Suppl. p. 192, 1858. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 19, pl. 2, fig. 5, 1854.

Diedrocephala novæboracensis Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876; iii, p. 159, 1877. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 24, 1887 (*Tettigonia*). Van Duzee, Can. Ent. xxi, p. 9, 1889; Psyche v, p. 390, 1890. Osborn, Dept. of Ag., Div. of Ent. Bull. 22, p. 27, 1890; Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892. Southwick, Science xix, p. 318, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892.

Diedrocephala mollipes Prov., Pet. Faune Ent. Can. iii, p. 266, 1889.

Tettigonia prasina Walker, Homop. iii, p. 768, 1851. Van Duzee, Ent. News v, p. 155, 1894.

Hab.—Canada, New York to Maryland west to Iowa and Colorado.

Diedrocephala flaviceps Riley, Am. Ent. iii, p. 78, 1880. Howard, Insect Life vi, p. 267, 1894.

Tettigonia flaviceps Johnson and Fox, Ent. News iii, p. 60, 1892.

Hab.—Carolina to Texas.

Diedrocephala 7-guttata Walker.

Tettigonia 7-guttata Walker, Homop. iii, p. 773, 1851. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 727, pl. 21, fig. 15, 1854.

Diedrocephala septemguttata Walker, Homop. Suppl. p. 233, 1858. Van Duzee, Ent. News v, p. 156, 1894.

Hab.—Florida.

Diedrocephala sanguinolenta (Fabr.).

Cicada sanguinolenta Fabr., Syst. Rhyng. p. 67, 1803. Coquerb., Ill. ii, p. 79, tab. 18, fig. 12, 1801.

Tettigonia sanguinolenta Blanch., Hist. Nat. Ins. iii, p. 191, 1840. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 50, pl. 6, fig. 3, 1855. Walker, Homop. Suppl. p. 351, 1858. Stal, Hemip. Fab. ii, p. 78, 1869.

Teitigonia rubriguttata Walker, Homop. iii, p. 763, 1851. Van Duzee, Ent. News v, p. 155, 1894.

Hab.—"West coast of America," etc. This species may not belong to our North American fauna.

Diedrocephala typhlocyboides (Sign.).

Tettigonia typhlocyboides Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 725, pl. 21, fig. 11, 1854. Stal, Hemip. Af. iv, p. 118, 1866.

Diedrocephala typhlocyboides Walker, Homop. Suppl. p. 234, 1858.

Hab.—Mexico, etc.

Genus HELOCHARA Fitch.

Fitch, Homop. N. Y. State Cab. p. 56, 1851; id. reprint in Lintner's 9th Rept. p. 396, 1893. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 730, 1854 (1st group, 5th series). Walker, Homop. iv. p. 1156, 1858. Prov., Pet. Faune Ent. Can. iii, p. 267, 1889.

Helochara communis Fitch, Homop. N. Y. State Cab. p. 56, 1851; id. reprint in Lintner's 9th Rept. p. 396, 1893. Walker, Homop. Suppl. p. 235, 1858. Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 460, 1877; Wheeler's Rept. Chief of Eng. for 1877, p. 1334. Packard, Guide to Study of Ins. p. 532, 1876 (notice); Am. Nat. ii, p. 53, 1876 (mention). Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention). Prov., Pet. Faune Ent. Can. iii, p. 268, 1889. Smith, Cat. Ins. N. J. p. 444, 1890 (mention). Harrington, Ottawa Nat. vi, p. 32, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892 (mention). Southwick, Science xix, p. 318, 1892 (mention). Slosson, Ent. News v, p. 5, 1894 (mention).

Tettigonia communis Walker, Homop. iv, p. 1156, 1852. Sign., Ann. Soc. Ent. Fr. ser. 3, ii, p. 730, 1854, pl. 21, fig. 17.

Tettigonia herbida Walker, Homop. iii, p. 769, 1851. Van Duzee, Ent. News v, p. 155, 1894.

Hab.—Canada and New England west to British Columbia and Mexico.

Genus EUCANTHUS Lep. and Serv.

Lep. and Serv., Ency. Meth. x, p. 612, 1825. Burm., Handb. d. Ent. ii, 1, p. 116, 1835. Westw., Intr. to Mod. Classif. of Ins. ii, Synop. p. 116, 1840. Am. and Serv. Hemip. p. 574, 1843. Stal, Of. Vet. Ak. Forh. xix, p. 495, 1862 (notice). Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 502, 1866. Kirschb., Cicad. v. Wiesbd. p. 15, 1868. Stal, Hemip. Fab. ii, p. 61, 1869. Sahlbg., Cicad. p. 106, 1871. Fieb., Cicad. d'Europ. i, p. 109, 1875; ii, pl. 10, 1876. Mayr, Tabellen p. 29, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, p. 13. Prov., Pet. Faune Ent. Can. iii, p. 269, 1889.

Eucanthus orbitalis Fitch, Homop. N. Y. State Cab. p. 57, 1851; id. reprint in Lintner's 9th Rept. p. 397, 1893. Van Duzee, Can. Ent. xxi, p. 9, 1889. Prov., Pet. Faune Ent. Can. iii, p. 270, 1889.

Tettigonia orbitalis Walker, Homop. iv, p. 1159, 1852.

Hab.—Canada, New York, Michigan.

Subfamily GYPONINA Berg.

Berg, Hemip. Argent. p. 257, 1879. Stal, Hemip. Ins. Phil. Of. Vet. Ak. Forh. xxvii, p. 736, 1870.* Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, pp. 14 and 29, 1887. Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892.

Scarides Am. and Serv., Hemip. p. 576, 1843 (in part). Walker, Homop. iii, p. 809, 1851 (in part).

Scaridæ Dohrn, Cat. Hemip. p. 92, 1859 (includes Ledridæ).

Gyponinæ Ashm., Smith Cat. Ins. of N. J. p. 443, 1890.

Genus XEROPHLŒA Germ.

Germar, Zeits. f. Ent. i, p. 190, 1839. Burm., Gen. Ins. i, pl. 8, 1840. Walker, Homop. iii, p. 810, 1851. Berg, Hemip. Argent. p. 257, 1879.

Mesodicus Fieb., Verh. d. zool.-bot. Gesell. Wien xvi, p. 501, 1866. Fieb., Cicad. d. Europ. i, p. 104, 1875. Puton, Cat. Hemip. ed. 1875, p. 69. Mayr, Tabellen, p. 28, 1884.

Parapholis Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 461, 1877.

Xerophlœa peltata Uhler.

Parapholis peltata Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 461, 1877.

Xerophlœa peltata Uhler, Stand. Nat. Hist. ii, p. 248, 1884. Cockerell, Trans. Am. Ent. Soc. xx, p. 364, 1893.

(NOTE.—*X. viridis* Fab. may inhabit the West Indies; see Stal, Hemip. Fabr. ii, p. 59, 1869.)

Hab.—New York to Florida, Texas, Colorado and California.

* Dr. Stal's use of this term has priority over that of Dr. Berg, but he included under it such a heterogeneous assemblage of genera as to give to it a significance quite distinct from that intended by Dr. Berg. In the latter sense it is employed here.

Genus GYPONA Germ.

Germar, Mag. d. Ent. iv, p. 73, 1821. Burm., Handb. d. Ent. ii, 1. pp. 105, 114, 1835; Gen. Ins. i, pl. 16, 1840. Blanchard, Hist. des Ins. iii, p. 195, 1840. Am. and Serv., Hemip. p. 579, 1843. Walker, Homop. iii, p. 834, 1851. Stal, Rio Janeiro Hemip. ii, p. 45, 1858; Of. Vet. Ak. Forh. xix, p. 495, 1862; Stet., Ent. Zeit. xxv, p. 81, 1864; Hemip. Fabr. ii, p. 84, 1869. Spangb., Bih. Vet. Ak. Handl. v, No. 3, p. 5, 1878. Berg, Hemip. Argent. p. 258, 1879. Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 29, 1887. Prov., Pet. Faune Ent. du Can. iii, p. 269, 1889.

Gypona rugosa Spangb., Species Gyponæ. p. 6, 1878.

Hab.—Mexico, Mississippi, Colorado.

Gypona 8-lineata (Say).

Tettigonia 8-lineata Say, Jour. Acad. Nat. Sci. Phila. iv, p. 340, 1824; id. Compl. Writings ii, p. 257, 1869. Harris, Hitchcock Geol. of Mass. 2d ed. p. 580, 1835. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 804, 1855. Walk., Homop. Suppl. p. 349, 1858. Rathvon, in Mombert Hist. of Lancaster Co., Pa., p. 551, 1869 (notice).

Gypona 8-lineata Fitch, Trans. N. Y. State Ag. Soc. xxvii, p. 893, 1867. Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876; iii, p. 460, 1877; iv, p. 519, 1878; Stand., Nat. Hist. ii, p. 247, 1884, var. Spangb., Species Gyponæ p. 7, 1878. Van Duzee, Psyche v, p. 390, 1890. Southwick, Science xix, p. 318, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

Hab.—Canada, New York, Iowa Missouri.

Gypona cana Burm., Gen. Ins. i, pl. 16, No. 10, 1840. Walker, Homop. iii, p. 839, 1851. Spangb., Species Gyponæ p. 75, 1878 (notice); Ent. Tidsk. i, p. 23, 1881.

Gypona flavilineata Spangb., Species Gyponæ p. 8, 1878.?

Hab.—Carolina, Texas.

Gypona quebecensis Prov., Nat. Can. iv, p. 352. 1872; Pet. Faune Ent. du Can. iii, p. 269, 1889. Harrington, Ottawa Nat. vi, p. 32, 1892.

Hab.—Canada, New York, Pennsylvania, Florida (?).

Gypona pruinosa Spangb., Species Gyponæ p. 9, 1878.

Hab.—Texas, Georgia.

Gypona scrupulosa Spangb., Species Gyponæ p. 9, 1878.

Hab.—South Carolina.

Gypona olivacea Spangb., Ent. Tidsk. i, p. 24, 1881.

Hab.—America Borealis.

Gypona striata Burm., Gen. Ins. Gen. 16, No. 9, 1840. Walker, Homop. iii, p. 839, 1851. Spangb., Species Gyponæ p. 10, 1878.

Hab.—Pennsylvania, Wisconsin to Texas (Spangb.).

Gypona flavilineata Fitch, Homop. N. Y. State Cab. p. 57, 1851; id. reprint in Lintner's 9th Rep. p. 397, 1893; Trans. N. Y. State Ag. Soc. xxvii, p. 893, 1867. Walker, Homop. iv, p. 1159, 1852 (notice); Homop. Suppl. p. 256, 1858 (notice). Van Duzee, Can. Ent. xxi, p. 9, 1889; Psyche v, p. 388, 1890. Southwick, Science xix, p. 318, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892.

Tettigonia 8-lineata var. *a*, Say, Jour. Acad. Nat. Sci. Phila. iv, p. 340, 1824; Compl. Writings ii, p. 257, 1869.

Gypona 8-lineata Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 30, 1887. Uhler, Stand. Nat. Hist. ii, p. 247, 1884.

Hab.—Canada to Florida, Mississippi and Iowa.

(Note.—Probably some of the references under *G. 8-lineata* refer to this species. There is little doubt but this species is identical with the preceding, and should be known as *G. striata* Burm.)

Gypona fuscinervis Stal, Stet. Ent. Zeit. xxv, p. 84, 1864. Spangb., Species Gyponæ p. 12, 1878.

Hab.—Vera Cruz.

Gypona mexicana Spangb., Species Gyponæ p. 18, 1878.

Hab.—Mexico.

Gypona obesa Spangb., Ent. Tidsk. iv, p. 102, 1883.

Hab.—Mexico.

Gypona verticalis Stal, Stet. Ent. Zeit. xxv, p. 84, 1864. Spangb., Species Gyponæ p. 75, 1878 (notice); Ent. Tidsk. i, p. 28, 1881.

Hab.—Mexico.

Gypona melanota Spangb., Species Gyponæ p. 19, 1878.

Hab.—New Jersey, Georgia.

Gypona nigra Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 31, 1887.

Hab.—Illinois.

Gypona bimaculata Spangb., Species Gyponæ p. 23, 1878.

Hab.—Mexico.

Gypona unicolor Stal, Stet. Ent. Zeit. xxv, p. 84, 1864. Spangb., Species Gyponæ p. 25, 1878.

Hab.—Mexico.

Gypona germari Stal, Stet. Ent. Zeit. xxv, p. 84, 1864. Spangb., Species Gyponæ p. 26, 1878; Ent. Tidsk. iv, p. 104, 1883.

Hab.—Vera Cruz.

Gypona dorsalis Spangb., Species Gyponæ p. 30, 1878.

Hab.—Mexico.

Gypona ruficauda Spangb., Ent. Tidsk. iv, p. 104, 1883.

Hab.—Mexico.

Gypona angulata Spangb., Species Gyponæ p. 32, 1878. Townsend, Can. Ent. xxiv, p. 196, 1892 (mention).

Hab.—Texas, Arizona, Colorado.

Gypona tenella Spangb., Species Gyponæ p. 34, 1878.

Hab.—Georgia.

Gypona cinerea Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 460, 1877. Spangb., Species Gyponæ p. 75, 1878 (notice). Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 32, 1887.

Hab.—Connecticut, Illinois, Kansas, Utah.

Gypona meditabunda Spangb., Species Gyponæ p. 39, 1878.

Hab.—Texas.

Gypona signoreti Stal, Stet. Ent. Zeit. xxv, p. 83, 1861. Spangb., Species Gyponæ p. 42, 1878.

Hab.—Mexico.

Gypona citrina Spangb., Species Gyponæ p. 45, 1878.

Hab.—Texas.

Gypona pauperata Spangb., Ent. Tidsk. i, p. 33, 1881.

Hab.—North America.

Gypona badia Walker.

Tettigonia badia Walker, Homop. iii, p. 756, 1851.

Gypona badia Stal, Of. Vet. Ak. Forh. xix, p. 495, 1862. ? Van Duzee, Ent. News, v, p. 157, 1894.

Hab.—North America.

Gypona pectoralis Spangb., Species Gyponæ p. 46, 1878; Ent. Tidsk. i, p. 33, 1881.

Hab.—Illinois.

Gypona albimarginata Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 31, 1887. Harrington, Ottawa Nat. vi, p. 32, 1892.

Gypona hullensis Prov., Pet. Faune Ent. du Can. iii, p. 269, 1889.

Hab.—Canada, Michigan, Illinois.

Gypona bipunctulata Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 30, 1887.

Hab.—Illinois.

Gypona limbatipennis Spangb., Species Gyponæ p. 47, 1878.

Hab.—Illinois.

Gypona wallengreni Stal, Stet. Ent. Zeit. xxv, p. 82, 1864. Spangb., Species Gyponæ p. 50, 1878.

Hab.—Mexico.

Gypona vinula Stal, Stet. Ent. Zeit. xxv, p. 81, 1864. Spangb., Species Gyponæ p. 51, 1878; Ent. Tidsk. i, p. 33, 1881.

Hab.—Mexico.

Gypona bohemani Stal, Stet. Ent. Zeit. xxv, p. 81, 1864. Spangb., Species Gyponæ p. 52, 1878.

Hab.—Vera Cruz.

Gypona puncticollis Spangb., Species Gyponæ p. 54, 1878.

Hab.—Texas.

Gypona quadri-notata Spangb., Species Gyponæ p. 56, 1878.

Hab.—Georgia, Texas.

Gypona conspersa Spangb., Species Gyponæ p. 60, 1878.

Hab.—Mexico.

Gypona irrorella Spangb., Species Gyponæ p. 60, 1878.

Hab.—Texas, Florida.

Gypona punctipennis Stal, Stet. Ent. Zeit. xxv, p. 82, 1864. Spangb., Species Gyponæ p. 61, 1878.

Hab.—Mexico.

Gypona dohrni Stal, Stet. Ent. Zeit. xxv, p. 82, 1864. Spangb., Species Gyponæ p. 62, 1878; Ent. Tidsk. iv, p. 106, 1883.

Hab.—Mexico.

Gypona modesta Spangb., Ent. Tidsk. iv, p. 107, 1883.

Hab.—Illinois.

Gypona sanguinolenta Spangb., Species Gyponæ p. 63, 1878.

Hab.—Georgia, Texas.

Gypona scarlatina Fitch, Homop. N. Y. State Cab. p. 57, 1851; id. reprint in Lintner's 9th Rept. p. 397, 1893. Walker, Homop. iv, p. 1159, 1852 (notice). Van Duzee, Psyche v, p. 388, 1890.

Hab.—New York, Michigan.

Gypona annulipes Spangb., Ent. Tidsk. i, p. 35, 1881.

Hab.—Cuba.

Gypona bimaculata Woodworth.

Gypona bimaculata Woodworth, Bull. Ill. State Lab. Nat. Hist. iii, p. 32, 1887.

Hab.—Illinois.

Gypona grisea Spangb., Species Gyponæ p. 64, 1878.

Hab.—Georgia.

Gypona adspersa Stal, Of. Vet. Ak. Forh. xi, p. 252, 1854. Walker, Homop. Suppl. p. 255, 1858 (mention). Spangb., Species Gyponæ p. 67, 1878; Ent. Tidsk. iv, p. 106, 1883.

Hab.—South America; Mexico (Spangb.).

Gypona schaumi Stal, Stet. Ent. Zeit. xxv, p. 83, 1864. Spangb., Species Gyponæ p. 68, 1878.

Hab.—Mexico.

Gypona funebris Spangb., Ent. Tidsk. i, p. 37, 1881.

Hab.—Mexico.

Gypona mystica Spangb., Species Gyponæ p. 71, 1878. Berg, Hemip. Argent. p. 263, 1879.

Hab.—Mexico and South America.

Gypona fraudulenta Spangb., Ent. Tidsk. iv, p. 108, 1883.

Hab.—Mexico.

Gypona fraterna Spangb., Species Gyponæ p. 72, 1878.

Hab.—Texas.

Gypona miliaris Stal, Stet. Ent. Zeit. xxv, p. 83, 1864. Spangb., Species Gyponæ p. 73, 1878.

Hab.—Vera Cruz.

Doubtful Species.

Gypona subtacta Walker, Homop. Suppl. p. 256, 1858.

Hab.—Mexico.

Gypona viridescens Walker, Homop. Suppl. p. 257, 1858.

Hab.—Mexico.

Gypona colon Fitch MS. See Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892. (Note.—This and the following species are unknown to me. No description of them has ever been published.)

Gypona columba Fitch MS. See Uhler, Proc. Bost. Soc. Nat. Hist. xii, p. 327, 1869.

Genus ZINNECA Am. and Serv.

Am. and Serv., Hemip. p. 579, 1843. Walker, Homop. iii, p. 834, 1851. See Stal, Rio Janeiro Hemip. ii, p. 49, 1862 (mentioned).

Zinneca flavidorsum Am. and Serv., Hemip. p. 579, 1843, pl. 11, fig. 2. Walk., Homop. iii, p. 834, 1851 (mention).

Hab.—Pennsylvania.

Genus PENTHIMIA Germ.

Germ., Mag. der Ent. iv, p. 46, 1821. Gray, Griffith's An. Kingd. xv, p. 226, 1832. Burm., Handb. d. Ent. ii, 1, pp. 105, 115, 1835. Westw., Intr. Mod. Classif. Ins. ii, Synop. p. 117, 1840. Am. and Serv., Hemip. p. 580, 1843. Walker, Homop. iii, p. 840, 1851. Stal, Hemip. Af. iv, pp. 100, 107, 1866. Kirschb., Cicad. v. Wiesb. pp. 14, 71, 1868. Fieb., Cicad. d'Europ. i, p. 105, pl. 11, figs. 43, 44, 1875; ii, pl. 10, 1876. Mayr, Tabellen p. 28, 1884. Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Prov., Pet. Faune Ent. du Can. iii, p. 270, 1889.

Penthimia americana Fitch, Homop. N. Y. State Cab. p. 57, 1851; id. reprint in Lintner's 9th Rept. p. 397, 1893. Walker, Homop. iv, p. 1160, 1852 (mention). Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Van Duzee, Psyche v, p. 388, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

Penthimia vicaria Walker, Homop. iii, p. 841, 1851.

Penthimia picta Prov., Nat. Can. iv, p. 352, 1872. Prov., Pet. Faune Ent. du Can. iii, p. 270, 1889.

Hab.—New York to Florida and Michigan.

Family JASSIDÆ.

Jassides Am. and Serv., Hemip. p. 581, 1843 (group). Walker, Homop. iii, p. 843, 1851 (group). Provancher, Pet. Faune Ent. du Can. iii, p. 271, 1889 (family).

Jassida Stal, Of. Vet. Ak. Förh. xxvii, p. 735, 1870 (subfamily) [Includes Gyponina].

Jassina Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876 (subfamily) [Includes Bythoscopidæ]. Berg, Hemip. Argent. p. 263, 1879 (subfamily).

Jassinæ Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 462, 1877 (subfamily). [Includes Bythoscopidæ].

Jassidæ Osborn, Ent. Am. i, p. 26, 1885 [Includes Bythoscopidæ?]. Ashmead, Ent. Am. iv, p. 67, 1888. Van Duzee, Can. Ent. xxi, p. 9, 1889 [omits Typhlocybina]. Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892.

Subfamily ACOCEPHALINA.

Acocephalidæ Dohrn, Cat. Hemip. p. 84, 1859. Kirschb., Cicad. v. Wiesb. p. 15, 1868 (subfamily). Fieber, Cat. Cicad. Eur. p. 10, 1872 (subfamily). Mayr, Tabellen p. 27, 1884 (subfamily). Edwards, Trans. Ent. Soc. Lond. 1886, p. 45 (family).

Acocephalides Sahlbg., Cicad. pp. 72, 352, 1871 (tribe).

Acocephalini Puton, Cat. Hemip. Palæ. p. 79, 1886 (tribe).

Acocephalina Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892 (subfamily).

Genus STRONGYLOCEPHALUS Fior.

Fior, Rhynch. Livl. ii, p. 109, 1861. Kirschb., Cicad. v. Wiesb. p. 73, 1868. Sahlbg., Cicad. pp. 72, 352, 1871. Fieber, Cicad. d'Europ. i, p. 111, 1875; ii, pl. 11, 1876. Mayr, Tabellen p. 29, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, p. 17. Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Strongylocephalus agrestis (Fall.).

Cicada agrestis Fallen, Act. Holm. xxvii, p. 23, 1806; Hemip. Suec. Cicad. p. 36, 1829.

Selenocephalus agrestis Burm., Gen. Ins. i, pl. 12, 1940. Walker, Homop. iii, p. 852, 1851.

Strongylocephalus agrestis Flor, Rhynch. Livl. ii, p. 210, 1861. Kirschb., Cicad. v. Wiesb. p. 74, 1868. Sahlbg., Cicad. p. 353, 1871. Edwards, Trans. Ent. Soc. Lond. 1888, p. 18.

Hab.—New York, Michigan.

Genus ACOCEPHALUS Germ.

Germar, Silb. Rev. i, p. 181, 1833. Burm., Handb. d. Ent. ii, pt. 1, pp. 105, 111, 1835; Gen. Ins. i, pl. 11, 1840. Westw., Intr. Classif. Ins. ii, Synop. p. 116, 1840 (*Acucephalus*). Am. and Serv., Hemip. p. 582, 1843. Walker, Homop. iii, p. 846, 1851 (notice). Kirschb., Cicad. v. Wiesb. pp. 15, 73, 74, 1868. Sahlbg., Cicad. pp. 72, 355, 1871. Fieb., Cicad. d'Europ. i, p. 111, 1875; ii, pl. 11, 1876. Sign., Ann. Soc. Ent. Fr. ser. 5, ix, pp. 50, 61, 1879. Berg, Hemip. Argent. p. 264, 1879. Mayr, Tabellen, p. 30, 1884. Uhler, Stand. Nat. Hist. ii, p. 247, 1884 (notice). Edwards, Trans. Ent. Soc. Lond. 1888, p. 19. Provancher, Pet. Faune Ent. du Can. iii, pp. 273, 282, 1889. Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Acocephalus striatus (Linn.) See Walker, Homop. iii, p. 848, for synonymy: also: Edwards, Trans. Ent. Soc. Lond. 1888, p. 19. Puton, Cat. Hemip. Palæ. p. 79, 1886. *Nervosus* Schrank, Uhler, Stand. Nat. Hist. ii, p. 247, 1884.

Hab.—Canada, New York.

Acocephalus mixtus (Say).

Tettigonia mixta Say, Jour. Acad. Nat. Sci. Phila. iv, p. 341, 1825; id. reprint Compl. Writings ii, p. 258. Walker, Homop. iv, p. 1157, 1852 (mention).

Acocephalus mixtus Van Duzee, Psyche v, p. 390, 1890. Southwick, Science xix, p. 318, 1892.

Hab.—Canada, New York, Michigan.

? Acocephalus solidaginis Walker, Homop. iii, p. 847, 1851. (This may be a *Phlepsius*).

Hab.—North America (Walk.).

? Acocephalus circumflexus Prov., Pet. Faune Ent. Can. iii, p. 282, 1890.

Hab.—Canada.

Genus XESTOCEPHALUS Van Duzee.

Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892; Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Xestocephalus pulicarius Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—Canada, New York.

Xestocephalus fulvocapitatus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—New York.

Xestocephalus tessellatus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—North Carolina, Florida, Mississippi.

Subfamily JASSINA.

Jassidæ Dohrn, Cat. Hemip. p. 86, 1859. Kirschb., Cicad. v. Wiesb. p. 15, 1868 (subfamily). Mayr, Tabellen p. 30, 1884 (subfamily). Edwards, Trans. Ent. Soc. Lond. 1886, p. 45 (family). Harrington, Ottawa Nat. vi, p. 32, 1892 (includes *Ulopa*).

Jassides Sahlb., Cicad. p. 70, 1871 (tribe).

Jassini Puton, Cat. Hemip. Palæ. p. 81, 1886 (tribe).

Jassina Van Duzee, Trans. Am. Ent. Soc. xix, p. 297, 1892.

Tribe DORYDINI.

Doriditæ Fieb., Cat. Europ. Cicad. p. 16, 1872.

Doridini Van Duzee, Trans. Am. Ent. Soc. xix, p. 288, 1892.

Genus COCHLORHINUS Uhler.

Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876. Van Duzee, Trans. Am. Ent. Soc. xix, p. 288, 1892.

Cochlorhinus pluto Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 358, 1876.

Hab.—California.

Genus DORYCEPHALUS Kusch.

Kuschakew, Horæ Soc. Ent. Ross. iv, 2, p. 102, pl. 2, 1866. Fieb., Cicad. d'Europ. i, p. 114, 1875; ii, pl. 11, 1876. Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Dorycephalus Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

Hab.—Iowa.

Genus HECALUS Stal.

Stal, Ann. Soc. Ent. Fr. ser. 4, iv, p. 65, 1864. Hemip. Af. iv, pp. 101, 813, 1866. Of. Vet. Ak. Ford. xxvii, p. 736, 1870. Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 51, 1879. Berg, Hemip. Argent. p. 273, 1879. Uhler, Stand. Nat. Hist. ii, p. 247, 1884. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Glassocratus Fieb., Verh. d. zool.-bot. Gesell. xvi, p. 502, 1866. Fieb., Cicad. d'Europ. i, p. 116, 1875; ii, pl. 11, 1876. Puton, Cat. Hemip. Palæ. p. 80, 1886 (reference).

Hecalus fenestratus (Uhler).

Glossocratus fenestratus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 464, 1877.

Hecalus fenestratus Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 268, 1879; id. Ann. Soc. Ent. ser. 5, x, p. 42, pl. 1, fig. 37, 1880.

Hab.—New Jersey, Kansas.

Hecalus lineatus Uhler.

Glossocratus lineatus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 463, 1877
Hecalus lineatus Uhler, Stand. Nat. Hist. ii, p. 247, 1884.

Hab.—New Jersey.

Genus SPANGBERGIELLA Sign.

Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 273, 1879.

Spangbergiella vulneratus (Uhler).

Glossocratus vulneratus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 464, 1877.
Spangbergia vulneratus Uhler, Stand. Nat. Hist. ii, p. 247, 1884.
Spangbergiella vulneratus Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 274, 1879; ser. 5, x, p. 43, 1880.

Hab.—Texas to South America.

Genus PARABOLOCRATUS Fieb.

Fieb., Verh. d. zool.-bot. Gesell. Wien, xvi, p. 502, 1866; Cicad. d'Europ. i, p. 117, 1875; ii, pl. 12, 1876. Stal. Of. Vet. Ak. Förh. xxvii, p. 736, 1870 (erroneous reference). Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 275, 1879; x, p. 41, 1880. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Parabolocratus viridis Uhler.

Glossocratus viridis Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 462, 1877.
Parabolocratus viridis Uhler, Stand. Nat. Hist. ii, p. 247, 1884. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, fig. 2, p. 11, 1892.
Gypona reverta Uhler, 4th Ann. Rept. U. S. Geol. and Geog. Surv. p. 472, 1872.

Hab.—Canada, Massachusetts and New York to Iowa and Colo.

Genus PARAMESUS Fieb.

Fieb., Verh. d. zool.-bot. Gesell. Wien, xvi, p. 506, 1866; Cicad. d'Europ. i, p. 112, 1875; ii, pl. 11, 1876. Sahlbg., Cicad. pp. 71, 285, 1871. Mayr, Tabellen p. 30, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 17, 29. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Paramesus twiningi (Uhler).

Jassus twiningi Uhler, Bull. U. S. Geol. and Geog. Surv. iv, p. 511, 1878.
Paramesus sp. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Dakota, Iowa.

Paramesus vitellinus (Fitch).

Acocephalus vitellinus Fitch, Homop. N. Y. State Cab. p. 57, 1851; id. reprint in Lintner's 9th Rept. p. 397, 1893. Walker, Homop. iv, p. 1160, 1852 (mention). Van Duzee, Can. Ent. xxi, p. 9, 1889 (mention).
Selenocephalus vitellinus Ashm., Smith Ins. of N. J. p. 445, 1890. Van Duzee, Psyche v, p. 390, 1890.
Parabolocratus vitellinus Southwick, Science xix, p. 318, 1892.

Hab.—Canada, New York, New England, Michigan.

Tribe DELTOCEPHALINI.

Deltocephalidæ Fieb., Cat. d. Europ. Cicad. p. 13, 1871.
Deltocephalini Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Genus PLATYMETOPIUS Burm.

Burm., Gen. Ins. i, pl. 14, subg. 4, 1840. Walker, Homop. Suppl. p. 270, 1858 (mention). Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 506, 1866. Kirschb., Cicad. v. Wiesb. pp. 82, 146, 1868. Fieb., Verh. zool.-bot. Gesell. Wien, xix, p. 201, 1869. Sahlbg., Cicad. pp. 72, 295, 1871. Fieb., Cicad. d'Europ. i, p. 124, 1875; ii, pl. 13, 1876. Sign., Ann. Soc. Ent. Fr. ser. 5, ix, p. 52, 1879. Berg, Hemip. Argent. p. 272, 1879. Mayr, Tabellen p. 35, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 17, 26. Prov., Pet. Faune Ent. du Can. iii, p. 274, 1889. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Platymetopius acutus (Say).

Jassus acutus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 306, 1831; id. reprint Compl. Writings ii, p. 382, 1869. Fitch, Homop. N. Y. State Cab. p. 62, 1851 (mention); id. reprint Lintner's 9th Rept. p. 402, 1893. Walker, Homop. iii, p. 894, 1851; iv, p. 1163, 1852 (mention).

Platymetopius acutus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 473, 1877. Prov., Pet. Faune Ent. du Can. iii, p. 275, 1889. Van Duzee, Can. Ent. xxi, p. 11, 1889 (mention); Psyche v, p. 389, 1890. Harrington, Ottawa Nat. vi, p. 32, 1892 (mention). Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (mention). Townsend, Can. Ent. xxiv, p. 197, 1892 (mention). Davis, Bull. 102, Mich. Ag. Exper. Station p. 8, pl. i, fig. 3, 1893. Van Duzee, Lintner's 9th Rept. p. 410, 1893.

Hab.—Canada, United States west to Rocky Mountains.

Platymetopius frontalis Van Duzee, Can. Ent. xxii, p. 112, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Southwick, Science xix, p. 318, 1892.

Platymetopius albopunctatus Fitch MS. Ashm., Smith's Cat. Ins. N. J. p. 445, 1890.

Hab.—Canada, New York, Illinois, Iowa, Kansas.

Platymetopius elegans Van Duzee, Ent. Am. vi, p. 94, 1890.

Hab.—California.

Platymetopius modestus Stal, Of. Vet. Ak. Förh. xi, p. 255, 1854. Walker, Homop. Suppl. p. 270, 1858.

Hab.—Carolina (Stal).

? Platymetopius magdalensis Prov., Pet Faune Ent. Can. iii, p. 275, 1882.

Hab.—Quebec.

(NOTE.—Burmeister, Gen. Ins. i, genus *Jassus*, mentions two undescribed species from Pennsylvania under the names: *Jassus impluviatus* Germ. *Jassus meta* Germ., but the descriptions were never published, and we do not now know to which species they were applied.)

Genus **DELTOCEPHALUS** Burm.

Burm., Gen. Ins. i, pl. 14, subg. 3, 1840. Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 506, 1866; xix, p. 203, 1869. Kirschb., Cicad. v. Wiesb. pp. 82, 123, 1868. Sahlbg., Cicad. pp. 72, 298, 1871. Fieb., Cicad. d'Europ. i, p. 124, 1875; ii, pl. 13, 1876. Berg, Hemip. Argent. p. 268, 1879. Mayr, Tabellen p. 35, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 33, 42. Prov., Pet. Faune Ent. Can. iii, pp. 273, 277, 1889. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Deltocephalus sayi (Fitch).

Amblycephalus sayi Fitch, Homop. N. Y. State N. Y. Cab. p. 61, 1851; id. reprint Lintner's 9th Rept. p. 401. 1893.

Jassus sayi Walker, Homop. iv, p. 1158, 1852.

Deltocephalus sayi Uhler, Bull. U. S. Geol. and Geog. Surv. iv, p. 511, 1878. Prov., Pet. Faune Ent. Can. iii, p. 280, 1889. Van Duzee, Can. Ent. xxi, p. 11, 1889; Psyche v, p. 390, 1890. Harrington, Ottawa Nat. vi, p. 32, 1892. Osborn, Proc. Iowa Acad. Sci. pt. 2, p. 12, 1892. Southwick, Science xix, p. 288, 1892. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Hab.—Canada, N. and E. States to Iowa, Colorado and Miss.

Deltocephalus weedi Van Duzee, Trans. Am. Ent. Soc. xix, p. 306, 1892.

Hab.—Mississippi.

Deltocephalus signatifrons Van Duzee, Trans. Am. Ent. Soc. xix, p. 305, 1892.

Hab.—Colorado.

Deltocephalus minki Fieb., Verh. zool.-bot. Gesell. Wien, xix, p. 217, 1869, topl. 6, fig. 45. Prov., Pet. Faune Ent. Can. iii, p. 279, 1889.

Hab.—Canada, New York; also Europe.

Deltocephalus minutus Van Duzee, Ent. Am. vi, p. 96, 1890.

Hab.—California.

Deltocephalus melscheimeri (Fitch).

Amblycephalus melscheimeri Fitch, Homop. N. Y. State Cab. p. 61, 1851; id. reprint in Lintner's 9th Rept. p. 401, 1893.

Jassus melscheimeri Walker, Homop. iii, p. 895, 1851.

Tettigonia melscheimeri Walker, Homop. iv, p. 1158, 1852.

Deltocephalus melscheimeri Van Duzee, Psyche v, p. 390, 1890. Harrington, Ottawa Nat. vi, p. 32, 1892.

Deltocephalus debilis Osborn, Iowa Ag. Exper. Station, Bull. 13, p. 100, 1891; id. Rept. Iowa Ag. Soc. for 1892, p. 688; Papers on Iowa Ins. p. 56; Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892; Bull. 30, Div. of Ent. p. 45, 1893.

Hab.—Canada, New York, Michigan, Iowa, Colorado.

Deltocephalus debilis Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 360, 1876. Van Duzee, Can. Ent. xxi, p. 11, 1889. Harrington, Ottawa Nat. vi, p. 32, 1892.

Deltocephalus melscheimeri Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Canada, New York to Iowa, Colorado.

Deltocephalus argenteolus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 473, 1877.

Hab.—Colorado.

Deltocephalus configuratus Uhler, Bull. U. S. Geol. and Geog. Surv. iv, p. 511, 1879. Van Duzee, Can. Ent. xxi. p. 11, 1889. Harrington, Ottawa Nat. vi, p. 5, 1894.

Hab.—Canada, White Mountains, New York, Dakota.

Deltocephalus cinerosus Van Duzee, Trans. Am. Ent. Soc. xix, p. 305, 1892.

Hab.—California.

Deltocephalus osborni Van Duzee, Trans. Am. Ent. Soc. xix, p. 304, 1892.

Hab.—New York, Iowa.

Deltocephalus simplex Van Duzee, Trans. Am. Ent. Soc. xix, p. 304, 1892.

Hab.—New York, New Jersey, Maryland.

Deltocephalus fuscinervosus Van Duzee.

Hab.—California.

Deltocephalus flavocostatus Van Duzee, Can. Ent. xxiv, p. 116, 1892. Weed, Can. Ent. xxiv, p. 279, 1892.

Deltocephalus harrisi Fitch MS.

Hab.—Mississippi.

Deltocephalus coquilletti Van Duzee, Ent. Am. vi, p. 95, 1890.

Hab.—California.

Deltocephalus nigrifrons Forbes.

Cicadula nigrifrons Forbes, 14th Rept. Ill. State Ent. p. 67, pl. v, fig. 3, 1864.

Hab.—New York, Illinois, Mississippi, New Mexico, California.

Deltocephalus concentricus Van Duzee.

Hab.—Colorado.

Deltocephalus inimicus (Say).

Jassus inimicus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 305, 1831; id. reprint Compl. Writings ii, p. 382, 1869. Walker, Homop. iii, p. 895, 1851; iv, p. 1163, 1852. Forbes, 14th Rept. State Ent. Ill. pp. 22, 67, 1884.

Amblycephalus inimicus Fitch, Homop. N. Y. State Cab. p. 61, 1851; id. reprint in Lintner's 9th Rept. p. 401, 1893.

Tettigonia inimica Walker, Homop. iv, p. 1158, 1852.

Deltocephalus inimicus Van Duzee, Can. Ent. xxi, p. 11, 1889. Prov. Pet. Faune Ent. Can. iii, p. 278, 1889. Van Duzee, Psyche v, p. 389, 1890. Osborn, Bull. 13, Iowa Ag. Exper. Station, p. 99, 1891; id. Rept. Iowa State Ag. Soc. 1892, p. 687; Papers on Iowa Insects p. 65; Insect Life v, p. 113, 1892; Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Southwick,

Science xix, p. 288, 1892. Osborn, Bull. 30, Div. of Ent. p. 45, 1893. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Jassus 6-punctatus Prov., Nat. Can. iv, p. 378, 1872.

Hab.—Canada, United States west to Rocky Mountains.

? Deltocephalus chlamidatus Prov., Pet. Faune Ent. Can. iii, p. 339, 1890.

Hab.—Quebec.

? Deltocephalus superbus Prov., Pet. Faune Ent. Can. iii, p. 339, 1890.

Hab.—Quebec.

? Deltocephalus citronellus Prov., Pet. Faune Ent. Can. iii, p. 279, 1889 (this is not his *Jassus citronellus* (Nat. Can. iv, p. 378, 1872) as stated by him).

Hab.—Canada.

? Deltocephalus retrorsus Uhler MS. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892 (this and the next are unknown to me, as no descriptions of them have been published. They may represent some of the described species enumerated above).

? Deltocephalus virgulatulus Uhler MS. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Iowa.

Genus ALLYGUS Fieb.

Fieb., Cat. Europ. Cicad. p. 13, 1871; Cicad. d'Europ. i, p. 123, 1875; ii. pl. 13, 1876. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 33, 59. Van Duzee, Ent. Am. vi, p. 93, 1890 (notice); id. Trans. Am. Ent. Soc. xix. p. 299, 1892.

Jassus Mayr, Tabellen p. 34, 1884. Puton, Cat. Hemip. Palæ. p. 84, 1886.

Allygus costomaculatus Van Duzee.

Hab.—Texas.

Allygus inscriptus Van Duzee, Ent. Am. vi, p. 92, 1890.

Hab.—California.

Allygus (?) irrorellus (Stal).

Athysanus irrorellus St. Frega. Eug. Resa, Ins. p. 295, 1859.

Hab.—California.

Genus GONIAGNATHUS Fieb.

Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 506, 1866; Cicad. d'Europ. i. p. 123, 1875; ii, pl. 13, 1876. Mayr. Tabellen p. 34, 1884. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Goniagnathus palmeri Van Duzee, Can. Ent. xxiii, p. 171, 1891.

Hab.—North Carolina.

Tribe ATHYSANINI.

Van Duzee, Trans. Am. Ent. Soc. xix, p. 288, 1892.

Genus ATHYSANUS Burm.

Burm., Gen. Ins. i, pl. 14, subg. 2, 1840. Am. and Serv., Hemip. p. 587, 1843 (notice). Kirschb., Die Athysanus Arten v. Wiesb. p. 3, 1858. Walker, Homop. Suppl. p. 268, 1858 (notice). Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 505, 1866. Kirschb., Cicad. v. Wiesb. pp. 81, 102, 1868. Stal, Hemip. Fabr. ii, p. 83, 1869 (mention). Sahlbg., Cicad. pp. 71, 260, 1871. Fieb., Cicad. d'Europ. i, p. 122, 1875; ii, pl. 12, 1876. Berg, Hemip. Argent. p. 265, 1879. Mayr, Tabellen p. 33, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 33, 35. Prov., Pet. Faune Ent. Can. iii, p. 281, 1889. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892.

Athysanus obsoletus Kirschb., Die Athysanus Arten v. Wiesb. p. 7, 1858; Cicad. v. Wiesb. p. 109, 1868. Edwards, Trans. Ent. Soc. Lond. 1888, p. 40. Prov., Pet. Faune Ent. Can. iii, p. 281, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Canada, New York, Iowa.

Athysanus extrusus Van Duzee, Can. Ent. xxv, p. 283, 1893.

Hab.—Canada, New York, New Hampshire, Connecticut, Michigan, Kansas.

Athysanus sexvittatus Van Duzee, Can. Ent. xxvi, p. 93, 1894.

Hab.—Colorado.

Athysanus comma Van Duzee, Can. Ent. xxiv, p. 114, 1892.

Hab.—Iowa.

Athysanus plutonius (Uhler).

Jassus plutonius Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 470, 1877.

Athysanus plutonius Prov., Pet. Faune Ent. Can. iii, p. 282, 1889. Harrington, Ottawa Nat. vi, p. 32, 1892.

Hab.—Canada, New York, Dakota, Colorado, Texas.

Athysanus anthracinus Van Duzee, Can. Ent. xxvi, p. 136, 1894.

Schleroracus anthracinus Uhler MS.

Conogonus gagates Ashm. MS. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Iowa, Kansas, Colorado.

Athysanus Van Duzee.

Hab.—Kansas, Colorado.

Athysanus Van Duzee.

Hab.—Florida.

Athysanus curtisii (Fitch).

Amblycephalus curtisii Fitch, Homop. N. Y. State Cab. p. 61, 1851; id. reprint in Lintner's 9th Rept. p. 401, 1893.

Tettigonia curtisii Walker, Homop. iv, p. 1159, 1852; id. Homop. Suppl. p. 348, 1858.

Deltocephalus curtisii Prov., Pet. Faune Ent. Can. iii, p. 278, 1889.

Athysanus curtisii Van Duzee, Psyche v, p. 290, 1890. Osborn, Proc. Iowa Sci. i, pt. 2, p 12. 1892 (mention). Southwick, Science xix, p. 288, 1892.

Jassus nervatus Prov., Nat. Can. iv, p. 378, 1872.

Hab.—Canada, New York, New Hampshire, Pennsylvania, Iowa, Michigan.

Athysanus bicolor Van Duzee, Can. Ent. xxiv, p. 114, 1892. Weed, Can. Ent. xxiv, p. 279, 1892.

Hab.—Mississippi, Kansas.

Athysanus obtutus Van Duzee, Can. Ent. xxiv, pp. 115, 156, 1892. Weed, Can. Ent. xxiv, p. 279, 1892.

Hab.—Mississippi.

(By a typographical error this name was spelled *obtusus* in the original description.)

Athysanus instabilis Van Duzee, Can. Ent. xxv, p. 284, 1893; Bull. 102, Mich. Ag. Exper. Station, p. 8, 1894; id. reprint in Exper. Station Record v, p. 791, 1894. Weed, Bull. 102, Mich. Ag. Exper. Station, p. 8, pl. 1, fig. 4, 1884.

Hab.—Michigan, Colorado.

Athysanus striatulus Toll.? Van Duzee, Ent. Am. vi, p. 134, 1890. Smith, N. J. Ag. Exper. Station, Bull. K, p. 42, fig. 25, 1890; Coll. Ins. N. J. p. 446, 1890 (for references to European literature see Sahlbg., Cicad. p. 253; and Edwards, Trans. Ent. Soc. London 1888, p 67). See Stal, Stet. Ent. Zeit. xix, p. 195, 1858.

Genus EUTETTIX Van D.

Van Duzee, Psyche vi, p. 307, 1892; Trans. Am. Ent. Soc. xix, p. 300, 1892.

Eutettix lurida Van Duzee.

Thamnotettix lurida Van Duzee, Can. Ent. xxii, p. 250, 1890.

Eutettix lurida Van Duzee, Psyche vi, p. 307, 1892.

Hab.—Michigan, Iowa, Maryland.

Eutettix southwicki Van Duzee.

Hab.—New York.

Eutettix johnsoni Van Duzee, Can. Ent. xxvi, p. 137, 1894.

Hab.—Pennsylvania, New York.

Eutettix subænea Van Duzee.

Thamnotettix subænea Van Duzee, Ent. Am. vi, p. 77, 1890; id. Psyche vi, p. 307, 1892.

Eutettix subæneus Van Duzee, Trans. Am. Ent. Soc. xix, p. 303, 1892.

Hab.—California.

Eutettix picta Van Duzee.

Eutettix pictus Van Duzee, Trans. Am. Ent. Soc. xix, p. 301, 1892.

Hab.—Pennsylvania.

Eutettix marmorata Van Duzee.

Eutettix marmoratus Van Duzee, Trans. Am. Ent. Soc. xix, p. 302, 1892.

Hab.—North Carolina.

Eutettix jucunda (Uhler).

Jassus jucundus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 469, 1877.

Eutettix jucundus Van Duzee, Psyche vi, p. 307, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Maryland, Iowa, Colorado, Texas, Mississippi.

Eutettix seminuda (Say).

Jassus seminudus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 307, 1831; id. reprint in Compl. Writings ii, p. 383, 1869. Harris, Hitchcock's Geol. of Mass. 2d ed p. 580, 1835.

Bythoscopus seminudus Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Walker, Homop. iv, p. 1161, 1852. Dimmock, Psyche iv, p. 241, 18 . Packard, Fifth Rept. U. S. Ent. Comm. p. 513, 1890. Ashmead, Smith's Cat. Ins. N. J. p. 445, 1890.

Thamnotettix seminudus Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Athysanus seminudus Van Duzee, Psyche v, p. 389, 1890.

Eutettix seminudus Van Duzee, Psyche vi, p. 307, 1892; id. in Lintner's 9th Rept. p. 410, 1893.

Hab.—Eastern United States and Canada.

Eutettix clarivida Van Duzee, Can. Ent. xxvi, p. 138, 1894.

Hab.—Colorado.

Genus PHLEPSIUS Fieb.

Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 503, 1866; Cicad. d'Europ. i, p. 122, 1875; ii, pl. 12, 1876. Sign., Ann. Soc. Ent. Fr. ser. 5, x, p. 68, 1880. Mayr, Tabellen p. 32, 1884. Van Duzee, Trans. Am. Ent. Soc. xix, pp. 63, 300, 1892.

Allygus Uhler, Stand. Nat. Hist. iii, p. 245, 1884. Prov., Pet. Faune Ent. Can. iii, pp. 273, 286, 1889.

Phlepsius superbus Van Duzee, Trans. Am. Ent. Soc. xix, p. 81, pl. 1, figs. 18, 19, 24, 1892.

Hab.—North Carolina, Arizona, California.

Phlepsius excultus (Uhler).

Jassus excultus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 467, 1877.

Jassus infumatus and *scalaris* Uhler, in litt.

Phlepsius excultus Van Duzee, Trans. Am. Ent. Soc. xix, p. 80, pl. 1, fig. 17, 1892.

Hab.—New York to Florida, west to Colorado and Texas.

Phlepsius ovatus Van Duzee, Trans. Am. Ent. Soc. xix, p. 79, pl. 1, fig. 16, 1892.

Hab.—Texas, Colorado.

Phlepsius spatulatus Van Duzee, Trans. Am. Ent. Soc. xix, p. 78, pl. 1, fig. 15, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Iowa, Texas.

Phlepsius nebulosus Van Duzee, Trans. Am. Ent. Soc. xix, p. 77, pl. 1, figs. 14, 23, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Dakota, Iowa?, Mississippi, Florida.

Phlepsius humidus Van Duzee, Trans. Am. Ent. Soc. xix, p. 76, pl. 1, figs. 13, 22, 1892. Southwick, Science xix, p. 288, 1892.

Hab.—Canada, New York, Maryland, New Hampshire.

Phlepsius apertus Van Duzee, Trans. Am. Ent. Soc. xix, p. 76, pl. 1, fig. 12, 1892.

Hab.—Canada.

Phlepsius incisus Van Duzee, Trans. Am. Ent. Soc. xix, p. 73, pl. 1, fig. 9, 1892.

Hab.—Canada, New York, Michigan.

Phlepsius truncatus Van Duzee, Trans. Am. Ent. Soc. xix, p. 72, pl. 1, fig. 8, 1892.

Hab.—North Carolina.

Phlepsius irroratus (Say).

Jassus irroratus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 308, 1831; id. reprint in Compl. Writings ii, p. 384, 1869. Harris, Hitchcock Geol. of Mass. 2d ed. p. 580, 1835. Fitch, Homop. N. Y. State Cab. p. 62, 1851; id. reprint in Lintner's 9th Rept. p. 402, 1893; Trans. N. Y. State Ag. Soc. xvi, p. 449, 1856. Walker, Homop. iii, p. 894, 1851; iv, p. 1164, 1852. Rathvon, Mombert Hist. of Lancaster Co., Pa., p. 551, 1869. Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 467, 1877; Bull. U. S. Geol. and Geog. Surv. iv, p. 511, 1878. Packard, Guide to Study of Insects p. 532, 1876; Bull. 7, U. S. Ent. Comm. p. 80, 1881 (*inornatus*); Fifth Rept. U. S. Ent. Comm. p. 324, 1891 (*inornatus*). Lintner, First Rept. N. Y. State Ent. p. 331, 1882 (notice). Smith, Cat. Ins. N. J. p. 446, 1890.

Illygus irroratus Uhler, Stand. Nat. Hist. ii, p. 245, fig. 310, 1884. Van Duzee, Can. Ent. xxi, p. 11, 1889. Osborn, U. S. Dept. of Ag., Div. of Ent. Bull. xxii, p. 30, 1890. Prov., Pet. Faune Ent. Can. iii, p. 286, pl. 5, fig. 16, 1890; Nat. Can. xix, p. 248, 1890.

Phlepsius irroratus Van Duzee, Ent. Am. vi, p. 93, 1890; Psyche v, p. 389, 1890; Trans. Am. Ent. Soc. xix, p. 71, pl. 1, figs. 6, 7, 21, 1892. Osborn Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Jassus testudinarius Burm., Gen. Ins. i, Jassus No. 4, 1840. Walker, Homop. iii, p. 891, 1851. Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 467, 1877 (= *irroratus*).

Hab.—Canada, Massachusetts to Iowa and Kansas.

Phlepsius cinereus Van Duzee, Trans. Am. Ent. Soc. xix, p. 68, pl. 1, fig. 4, 1892.

Hab.—Mississippi, Colorado, Texas.

Phlepsius pallidus Van Duzee, Trans. Am. Ent. Soc. xix, p. 69, pl. 1, fig. 5, 1892.

Hab.—Texas.

Phlepsius fuscipennis Van Duzee, Trans. Am. Ent. Soc. xix, p. 70, pl. 1, fig. 2, 1892. Southwick, Science xix, p. 287, 1892.

Hab.—New York.

Phlepsius latifrons Van Duzee, Trans. Am. Ent. Soc. xix, p. 66, pl. 1, fig. 1, 1892

Hab.—Maryland.

Phlepsius fulvidorsum (Fitch).

Jassus fulvidorsum Fitch, Homop. N. Y. State Cab. p. 62, 1851; id. reprint in Lintner's 9th Rept. p. 402, 1893. Walker, Homop. iii, p. 891, 1851.

Phlepsius fulvidorsum Van Duzee, Psyche v, p. 390, 1890; Trans. Am. Ent. Soc. xix, p. 74, pl. 1, fig. 10, 1892. Southwick, Science xix, p. 287, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Hab.—New York to Florida, west to Iowa and Texas.

Phlepsius punctiscriptus Van Duzee, Trans. Am. Ent. Soc. xix, p. 75, pl. 1, fig. 11, 1892.

Hab.—Texas.

Phlepsius uhleri Van Duzee, Trans. Am. Ent. Soc. xix, p. 67, pl. 1, fig. 20, 1892.

Hab.—Maryland.

Phlepsius strobi (Fitch).

Bythoscopus strobi Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893; Trans. N. Y. State Ag. Soc. xvii, p. 739, 1857. Walker, Homop. iii, p. 876, 1851 (mention). Rathvon, Mombert Hist. Lancaster Co., Pa., p. 551, 1869 (mention). Packard, Bull. 7, U. S. Ent. Comm. p. 216, 1881 (after Fitch); Fifth Rept. U. S. Ent. Comm. p. 802, 1891 (after Fitch).

Phlepsius strobi Van Duzee, Psyche v, p. 390, 1890; Trans. Am. Ent. Soc. xix, p. 67, pl. 1, fig. 3, 1892; id. in Lintner's 9th Rept. p. 410, 1893. Southwick, Science xix, p. 287, 1892.

Hab.—New York to Iowa and Texas.

Genus ACINOPTERUS Van Duzee.

Van Duzee, Psyche vi, p. 307, 1892; Trans. Am. Ent. Soc. xix, p. 299, 1892.

Acinopterus acuminatus Van Duzee, Psyche vi, p. 308, 1892.

Hab.—N. Jersey to N. Carolina and Mississippi; west to Colorado and California.

Genus SCAPHOIDEUS Uhler.

Uhler, Trans. Md. Acad. Sci. i, p. 33, 1889. Prov., Petit. Faune Ent. Can. iii, p. 276, 1889. Van Duzee, Trans. Am. Ent. Soc. xix, p. 299, 1892; Ent. Am. vi, p. 52, 1890 (notice).

Scaphoideus immistus (Say).

Jassus immistus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 306, 1831; id. reprint in Compl. Writings ii, p. 382. Walker, Homop. iv, p. 1163, 1852 (mention). Harris, Hitchcock Geol. of Mass. 2d ed. p. 580, 1835 (mention). Van Duzee, Can. Ent. xxi, p. 11, 1889.

Scaphoideus immistus Uhler, Trans. Md. Acad. Sci. i, p. 33, 1889. Prov., Pet. Faune Ent. Can. iii, p. 276, 1889. Van Duzee, Psyche v, p. 389, 1890. Harrington, Ottawa Nat. vi, p. 32, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892. Southwick, Science xix, p. 288, 1892.

Hab.—Canada, United States.

Scaphoideus intricatus Uhler, Trans. Md. Acad. Sci. i, p. 34, 1889.

Hab.—New Hampshire, New Jersey, Maryland, Virginia, Mich.

Scaphoideus luteolus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—New York, New Jersey.

Scaphoideus lobatus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—New York.

Scaphoideus sanctus (Say).

Jassus sanctus Say, Jour. Acad. Nat. Sci. Phila. vi, p. 307, 1831; id. reprint in Compl. Writings ii, p. 383. Walker, Homop. iv, 1164, 1852 (mention).

Hab.—Mississippi, Florida.

Scaphoideus consors Uhler, Trans. Md. Acad. Sci. i, p. 36, 1889.

Hab.—New York, Maryland, Texas.

Scaphoideus scalaris Van Duzee, Ent. Am. vi, p. 51, 1890.

Hab.—California.

Scaphoideus jucundus Uhler, Trans. Md. Acad. Sci. i, p. 34, 1889. Van Duzee, Can. Ent. xxi, p. 11, 1889 (mention).

Hab.—Canada, New York.

Scaphoideus auronitens Prov., Pet. Faune Ent. Can. iii, p. 277, 1889.

Hab.—Canada, New York, Mississippi.

Genus THAMNOTETTIX Zett.

Zett., Ins. Lapp. p. 292, 1840. Walker, Homop. Suppl. p. 269, 1858 (mere mention). Stal, Hemip. Af. iv, pp. 101, 122, 1866. Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 505, 1866. Kirschb., Cicad. v. Wiesb. pp. 81, 82, 1868. Stal, Hemip. Fabr. ii, p. 82, 1869 (mention). Sahlbg., Cicad. pp. 70, 207, 1871. Fieb., Cicad. d'Europ. i, p. 122, 1875; ii, pl. 12, 1876. Mayr, Tabellen p. 33, 1881. Fieb., Rev. d'Ent. iv, p. 59, 1885. Edwards, Trans. Ent. Soc. Lond. 1888, pp. 33, 62. Prov., Pet. Faune Ent. Can. iii, p. 283, 1889. Woodworth, Psyche v, p. 75, 1888. Van Duzee, Psyche vi, p. 306, 1892; Trans. Am. Ent. Soc. xix, p. 300, 1892.

Thamnotettix clitellaria (Say).

Jassus clitellarius Say, Jour. Acad. Nat. Sci. Phila. vi, p. 309, 1831; id. reprint in Compl. Writings ii, p. 384, 1869. Walker, Homop. iv, p. 1164, 1852 (mention). Harris, Hitchcock Geol. of Mass. 2d ed. p. 580, 1835. Smith, Cat. Ins. of N. J. p. 446, 1890.

Bythoscopus clitellarius Fitch, Homop. N. Y. State Cab. p. 58, 1851; Trans. N. Y. State Ag. Soc. xvi, pp. 359, 365, 1856. Walker, Homop. iii, p. 876, 1851. Saunders, Ins. Inj. to Fruit p. 188, 1886. Cockerell, Trans. Am. Ent. Soc. xx, p. 365, 1893.

Thamnotettix clitellarius Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Van Duzee, Psyche v, p. 389, 1890. Prov., Pet. Faune Ent. Can. iii, p. 284, 1890. Harrington, Ottawa Nat. vi, p. 32, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Van Duzee, Psyche vi, p. 306, 1893 (notice); in Lintner's 9th Rept. p. 410, 1893.

Hab.—Canada, United States west to Rocky Mountains.

Thamnotettix eburata Van Duzee, Can. Ent. xxi, p. 10, 1889.

Hab.—Canada, New Hampshire, New York.

Thamnotettix montana Van Duzee, Can Ent. xxiv, p. 268, 1892.

Hab.—Colorado, British Columbia.

Thamnotettix belli (Uhler).

Jassus belli Bull. U. S. Geol. and Geog. Surv. iii, p. 471, 1877.

Thamnotettix belli Van Duzee, Psyche vi, p. 306, 1892.

Thamnotettix semipullatus Van Duzee, MS. Psyche vi, p. 306, 1892.

Hab.—Canada, Colorado, Michigan.

Thamnotettix kennicottii Uhler.

Jassus kennicottii Uhler, Proc. Am. Ent. Soc. ii, p. 161, 1863.

Thamnotettix kennicottii Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Van Duzee, Psyche vi, p. 306, 1892.

Hab.—New York, Maryland, Colorado.

Thamnotettix coquilletti Van Duzee, Ent. Am. vi, p. 77, 1890; Psyche vi, p. 306, 1892.

Hab.—California

Thamnotettix fasciaticollis (Stal).

Jassus fasciaticollis Stal, Stet. Ent. Zeit. xxv, p. 86, 1864.

Hab.—Mexico, California.?

Thamnotettix decipiens Prov., Pet. Faune Ent. Can. iii, p. 285, 1890.

Hab.—Canada.

Thamnotettix aureola Van Duzee, Bull. Buff. Soc. Nat. Sci. v, No. 4, 1894.

Hab.—California.

Thamnotettix subcupræa Prov.

Jassus subcupræus Prov., Nat. Can. iv, p. 377, 1872.

Thamnotettix subcupræus Prov., Pet. Faune Ent. Can. iii, p. 284, 1890. Harrington, Can. Ent. xxvi, p. 16, 1894.

Hab.—Canada, New Hampshire.

Thamnotettix aurantiaca (Prov.).

Jassus aurantiacus Prov., Nat. Can. iv, p. 377, 1872.

Hab.—Canada.

Thamnotettix geminata Van Duzee, Ent. Am. vi, p. 79, 1890.

Hab.—California, Colorado.

Thamnotettix atropunctata Van Duzee, Ent. Am. vi, p. 91, 1890.

Hab.—California.

Thamnotettix flavocapitata Van Duzee, Ent. Am. vi, p. 80, 1890.

Hab.—California, Colorado.

Thamnotettix atridorsum Van Duzee, Can. Ent. xxvi, p. 92, 1894.

Hab.—Colorado.

Thamnotettix inornata Van Duzee, Trans. Am. Ent. Soc. xix, p. 303, 1892.

Hab.—New York.

Thamnotettix melanogaster Prov.

Jassus melanogaster Prov., Nat. Can. iv, p. 378, 1872.

Thamnotettix melanogaster Prov., Pet. Faune Ent. Can. iii, p. 284, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Canada, New York, Iowa.

Thamnotettix fitchi Van Duzee, Ent. Am. vi, p. 133, 1890. Smith, N. J. Ag. Exper. Station, Bull. K, p. 42, fig. 62, 1890.

Cicadula 4-punctata Fitch MS. See Insect Life vi, p. 267, 1894.

Hab.—New York, New Jersey.

Thamnotettix perpunctata Van Duzee, Bull. Buff. Soc. N. Sci. v, No. 4, 1894.

Hab.—New York south to North Carolina and Mississippi.

Thamnotettix longiseta Van Duzee, Can. Ent. xxiv, p. 267, 1892.

Hab.—Colorado.

Thamnotettix smithi Van Duzee, Can. Ent. xxiv, p. 266, 1892.

Hab.—New Jersey.

Thamnotettix gillettei Van Duzee, Can. Ent. xxiv, p. 267, 1892.

Hab.—Colorado.

Thamnotettix læta (Uhler).

Jassus lætus Uhler, Bull. U. S. Geol. and Geog. Surv. ii, p. 360, 1876; iii, p. 473, 1877.

Thamnotettix lætus Van Duzee, Psyche vi, p. 306, 1892; id. Can. Ent. xxiv, p. 268, 1892.

Hab.—Colorado.

? Thamnotettix limbata Van Duzee, Ent. Am. vi, p. 92, 1890.

Hab.—California.

? Thamnotettix luctuosus Stal, Frega Eug. Resa Hemip. p. 292, 1859.

Hab.—California.

Thamnotettix lineatifrons Stal, Stet. Ent. Zeit. xix, p. 195, 1858. Fieb., Revue d. Ent. iv, pp. 85, 109, 1885.

Hab.—Sitka.

Genus LIMOTETTIX Sahlbg.

Sahlbg., Cicad. p. 224, 1871. Edwards, Trans. Ent. Soc. Lond. 1888, p. 70 (in part). Woodworth, Psyche v, p. 75, 1888 (*Limnotettix*). Van Duzee, Psyche vi, p. 306, 1892; Trans. Am. Ent. Soc. xix, p. 300, 1892.

Limotettix striola (Fall.).

Cicada striola Fallen, Acta Holm xxvii, p. 31, 1806.

Athysanus striola Fieb., Katal. Europ. Cicad. p. 12, 1872. Van Duzee, Can. Ent. xxi, p. 11, 1889; xxiii, p. 171, 1891. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Limotettix striola Sahlbg., Cicad. p. 226, 1871. Edwards, Trans. Ent. Soc. Lond. 1888, p. 71 (synonymy). Van Duzee, Psyche vi, p. 306, 1892.

Hab.—Canada, New York.

Limotettix parallela Van Duzee.

Athysanus parallelus Van Duzee, Can. Ent. xxiii, p. 169, 1891.

Limotettix parallelus Van Duzee, Psyche vi, p. 306, 1892.

Hab.—Canada.

? Limotettix exitiosa (Uhler).

Cicadula exitiosa Uhler, Am. Ent. iii, p. 72, 1880; in Comstock's Rept., Dept. Ag. Rept. for 1879, p. 191. Uhler, Stand. Nat. Hist. ii, p. 245, 1884.

Osborn, Rept. Iowa State Ag. Soc. 1892, p. 688; Papers on Iowa Ins. p. 56; id. in Bull. 18, Iowa Ag. Exper. Station, p. 100, 1891; Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Limotettix exitiosa Van Duzee, Psyche vi, p. 306, 1892.

Hab.—Maryland to Florida and west to Colorado and Texas.

Genus **CHLOROTETTIX** Van Duzee.

Van Duzee, Psyche vi, p. 306, 1892; Trans. Am. Ent. Soc. xix, p. 300, 1892.

Chlorotettix unicolor (Fitch).

Bythoscopus unicolor Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Walker, Homop. iv, p. 1161, 1852 (mention).

Jassus unicolor Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 511, 1878. Prov., Pet. Faune Ent. Can. iii, p. 286, 1890.

Grypotes unicolor Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Van Duzee, Can. Ent. xxi. p. 9, 1889; Psyche v, p. 390, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Thamnotettix unicolor Harrington, Ottawa Nat. vi, p. 32, 1892.

Athysanus unicolor Southwick, Science xix, p. 288, 1892.

Chlorotettix unicolor Van Duzee, Psyche vi, pp. 306, 308, 1892; id. in Lintner's 9th Rept. p. 410, 1893.

Hab.—New York west to Iowa and north to Canada.

Chlorotettix tergata (Fitch).

Bythoscopus tergatus Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Walker, Homop. iv, p. 1161, 1852 (mention).

Grypotes tergatus Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Van Duzee, Psyche v, p. 390, 1890.

Athysanus tergatus Southwick, Science xix, p. 288, 1892.

Chlorotettix tergatus Van Duzee, Psyche vi, pp. 306, 309, 1892, id. in Lintner's 9th Rept. p. 410, 1893.

Hab.—New York, Pennsylvania, Michigan, Florida.

Chlorotettix viridia Van Duzee, Psyche vi, p. 309, 1892. Weed, Can. Ent. xxiv, p. 278, 1892.

Athysanus viridius Southwick, Science xix, p. 288, 1892.

Hab.—New York to North Carolina.

Chlorotettix galbanata Van Duzee, Psyche vi, p. 310, 1892.

Athysanus galbanatus Southwick, Science xix, p. 288, 1892.

Hab.—New York to North Carolina and west to Mississippi and Kansas.

Chlorotettix necopina Van Duzee, Can. Ent. xxv, p. 282, 1893.

Hab.—Mississippi.

Tribe JASSINI.

Cælididæ Dohrn, Cat. Hemip. p. 84, 1859.
Jassina Stal, Of. Vet. Ak. Förh. xxvii, p. 735, 1870 (subfamily).
Jassini Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Genus JASSUS Fabr. (Stal).

Fabr., Syst. Rhyng. p. 85, 1803. Stal, Hemip. Af. iv, pp. 101, 119, 1866; Hemip. Fab. ii, p. 87, 1869; Of. Vet. Ak. Förh. xxvii, p. 735, 1870. Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 3, 1878. Berg, Hemip. Argent. p. 265, 1879. Van Duzee, Trans. Am. Ent. Soc. xix, p. 300, 1892.

Cælidia Germ., Mag. d. Ent. iv, p. 75, 1821. Burm., Handb. d. Ent. ii, 1, pp. 105, 113, 1835; Gen. Ins. i, pl. 15, 1840. Am. and Serv., Hemip. p. 583, 1843. Walker, Homop. iii, p. 852, 1851 (notice). Stal, Of. Vet. Ak. Förh. xix, p. 494, 1862 (notice).

Daridna Walker, Homop. Suppl. p. 319, 1858. Stal, Of. Vet. Ak. Förh. xix, p. 487, 1862.

Jassus olitorius Say.

♂ *Jassus olitorius* Say, Jour. Acad. Nat. Sci. Phila. vi, p. 310, 1831; id. reprint in Compl. Writings ii, p. 385.

Cælidia olitoria Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Walker, Homop. iv, p. 1161, 1852. Uhler, Heilprin's Bermuda Islands, p. 154, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Jassus (sens. strict.) *olitorius* Van Duzee, Psyche v, p. 389, 1890; id. in Lintner's 9th Rept. p. 410, 1893.

♀ *Jassus subbifasciatus* Say, Jour. Acad. Nat. Sci. Phila. vi, p. 310, 1831; id. reprint in Compl. Writings ii, p. 385, 1869.

Cælidia subbifasciata Fitch, Homop. N. Y. State Cab. p. 58, 1851; id. reprint in Lintner's 9th Rept. p. 398, 1893. Walker, Homop. iv, p. 1161, 1852. Glover, Rept. Dept. of Agri. for 1876, p. 32. Smith, Cat. Ins. of N. J. p. 446, 1890. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Cælidea semifasciata Uhler, Stand. Nat. ii, p. 245, fig. 311, 1884.

Jassus subfasciatus Southwick, Science xix, p. 288, 1892.

Jassus (sens. strict.) *subbifasciatus* Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 16, 1878. Van Duzee, Psyche v, p. 389, 1892 (♀ of *olitorius*); in Lintner's 9th Rept. p. 410, 1893 (♀ of *olitorius*).

Idiocerus subbifasciatus Prov., Pet. Faune Ent. Can. iii, p. 292, 1890.

Pediopsis subbifasciatus Harrington, Ottawa Nat. vi, p. 31, 1892.

Hab.—Canada, United States west to the Rocky Mountains.

Jassus borealis Spangb., Of. Vet. Ak. Förh. xxxvi, No. 6, p. 24, 1879, pl. 16, fig. 8.

Hab.—America borealis.

Jassus pustulatus Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 18, 1878.

Hab.—Mexico.

Jassus melanotus Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 19, 1878.

Hab.—Georgia.

Jassus marginatus Stal, Stet. Ent. Zeit. xxv, p. 85, 1864. Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 20, 1878.

Hab.—Mexico.

Jassus fuscipennis Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 20, 1878.

Hab.—Illinois, Wisconsin (Spangb.).

(This may be *Jassus olitorius* (♂) Say)

Jassus guttatinervis Stal, Stet. Ent. Zeit. xxv, p. 85, 1864. Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 22, 1878.

Hab.—Vera Cruz.

Jassus fasciatipennis Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 25, 1878.

Hab.—Mexico.

Jassus flaviceps Stal, Stet. Ent. Zeit. xxv, p. 85, 1864. Spangb., Of. Vet. Ak. Förh. xxxv, No. 8, p. 19, 1878.

Hab.—Mexico.

Jassus gratiosus Spangb., Of. Vet. Ak. Förh. xxxv, No. 6, p. 25, 1878, pl. 16, fig. 10.

Hab.—Mexico.

Jassus lactipennis Van Duzee, Ent. Amer. vi, p. 49, 1890.

Hab.—California.

Genus TINOBREGMUS Van Duzee.

Van Duzee, Bull. Buff. Soc. Nat. Sci. v, p. 213, 1894.

Tinobregmus vittatus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, p. 214, 1894.

Hab.—Florida

Genus TERULIA Stal.

Stal, Rio Janeiro Hemip. ii, p. 50, 1862.

Terulia fasciaticollis (Stal).

Celidia fasciaticollis Stal, Stet. Ent. Zeit. xxv, p. 85, 1864.

Terulia fasciaticollis Spangb., Of. Vet. Ak. Förh. xxxvi, No. 6, p. 21, 1879, pl. 16, fig. 5.

Hab.—Vera Cruz.

Tribe CICADULINI.

Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Genus GNATHODUS Fieb.

Fieb., Verh. d. zool.-bot. Gesell. Wien, xvi, p. 505, 1866. Sahlbg., Cicad. pp. 70, 203, 1871. Fieb., Cicad. d'Europ. i, p. 118, 1875; ii, pl. 12, 1876. Mayr, Tabellen p. 31, 1884. Edwards, Trans. Ent. Soc. Lond. 1888, p. 77. Van Duzee, Trans. Am. Ent. Soc. xix, p. 300, 1892.

Gnathodus punctatus (Thunbg.).

Cicada punctata Thunbg., Act. Ups. vi, p. 21, 1782. Fallen, Hemip. Snec. Cicad. p. 55, 1820.

Jassus punctatus Walker, Homop. iii, p. 877, 1851, etc.

Gnathodus punctatus Fieb., Verh. d. zool.-bot. Gesell. Wien xvi, p. 505, 1866. Edwards, Trans. Ent. Soc. Lond. 1888, p. 77 (European synonymy). Harrington, Ottawa Nat. vi, p. 32, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Typhlocyba punctata Prov., Pet. Faune Ent. Can. iii, p. 301, 1890.

Typhlocyba vernalis Fitch MS.

Hab.—Canada, eastern United States to Iowa and Texas.

Gnathodus jocosa (Prov.).

Typhlocyba rosea Prov., Nat. Can. iv, p. 378, 1872.

Typhlocyba jocosa Prov., Pet. Faune Ent. Can. iii, p. 300, 1890.

Hab.—Canada.

(Probably only a variety of the preceding.)

Gnathodus abdominalis Van Duzee, Can. Ent. xxiv, p. 113, 1892.

Hab.—New Jersey, Colorado.

Gnathodus impictus Van Duzee, Can. Ent. xxiv, p. 113, 1892.

Hab.—New York, New Jersey, Iowa, Kansas.

Genus CICADULA Zett.

Zett., Ins. Lapp. p. 296, 1840. Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 506, 1866; Cicad. d'Europ. i, p. 119, 1875; ii, pl. 12, 1876; Revue d. Ent. iv, p. 40, 1885. Mayr, Tabellen p. 31, 1884. Woodworth, Psyche v, p. 75, 1888. Prov., Pet. Faune Ent. Can. iii, p. 287, 1890. Van Duzee, Psyche vi, p. 305, 1892; Trans. Am. Ent. Soc. xix, p. 300, 1892.

Macrosteles Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 504, 1866.

Thamnus Fieb., Verh. zool.-bot. Gesell. Wien, xvi, p. 505, 1866.

Cicadula 6-notata (Fall.)

Cicada 6-notata Fallen, Acta Holm xxvii, p. 34, 1806.

Cicadula 6-notata Zett. Ins. Lapp. p. 297, 1840. Fieb., Revue d. Ent. iv, p. 47, 1885. Woodworth, Psyche v, p. 75, 1888. Prov., Pet. Faune Ent. Can. iii, p. 287, 1890. Van Duzee, Psyche vi, p. 305, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892. Southwick, Science xix, p. 288, 1892. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Slosson, Ent. News v, p. 5, 1894.

Thamnotettix 6-notata Stal, Stet. Ent. Zeit. xix, p. 194, 1858. Kirschb., Cicad. v. Wiesbd. p. 95, 1868.

Jassus 6-notata Burm., Gen. Ins. i, genus 14, No. 17, 1840. Walker, Homop. iii, p. 878, 1851.

Limotettix 6-notata Sahlbg., Cicad. p. 247, 1871. Edwards, Trans. Ent. Soc. Lond. 1888, p. 76 (synonymy).

Macrosteles 6-notata Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 504, 1866.

? Cicadula 4-lineata Forbes, Ill. Ent. Rept. xiv, p. 68, 1884, pl. 5, fig. 4. Van Duzee, Can. Ent. xxi, p. 9, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892. Davis, Bull. 102 Mich. Ag. Exper. Station p. 8, pl. 1, fig. 1, 1893.

Hab.—North America from Ontario and Connecticut to Alaska and California, and south to Mississippi.

Cicadula variata (Fall.)

Cicada variata Fall., Acta Holm. xxvii, p. 34, 1806.

Jassus variatus H. Sch. Nom. Ent. p. 70, 1835. Walk., Homop. iii, p. 878, 1851.

Limotettix variata Sahlbg., Cicad. p. 250, 1871. Edwards, Trans. Ent. Soc. Lond. 1888, p. 76 (synonymy).

Thamnotettix variatus Kirschb., Cicad. v. Wiesbd. p. 99, 1868.

Cicadula variata Fieb., Revue d. Ent. iv, p. 51, 1885. Van Duzee, Psyche vi, p. 305, 1892. Harrington, Ottawa Nat. vi, p. 32, 1892.

Hab.—Canada, New York, Michigan.

Cicadula slossoni Van Duzee, Can. Ent. xxv, p. 281, 1893. Slosson, Ent. News v, p. 5, 1894 (mention).

Hab.—New York, New Hampshire.

Cicadula punctifrons (Fall.)

Cicada punctifrons Fallen, Hemip. Suec. Cicad. p. 42, 1826.

Thamnotettix punctifrons Boh., K. Vet.-Akad. Handl. 1847, p. 33. Kirschb., Cicad. v. Wiesbd. p. 88, 1868.

Jassus punctifrons Flor., Rhyng. Livl. p. 328, 1861. Walker, Homop. iii, p. 879, 1851.

Cicadula punctifrons Fieb., Revue d. Ent. iv, p. 50, 1885. Van Duzee, Psyche vi, p. 305, 1892; Can. Ent. xxiii, p. 169, 1891 (notice).

Hab.—New York, Iowa.

Cicadula punctifrons var. americana Van Duzee, Can. Ent. xxiii, p. 169, 1891.

Hab.—New York, New Hampshire.

Cicadula fascifrons (Stal).

Thamnotettix fascifrons Stal, Stet. Ent. Zeit. xix, p. 194, 1858.

Cicadula fascifrons Fieb., Revue d'Ent. iv, pp. 48, 57, 1885.

Hab.—Sitka, Alaska.

Cicadula lepida Van Duzee, Can. Ent. xxvi, p. 139, 1894.

Hab.—New York, Kansas.

Jassus farctus Harris, Hitchcock's Geol. of Mass. 2 ed. p. 580, 1835 (probably a MS. name).

Jassus areatus Harris, Hitchcock's Geol. of Mass. 2 ed. p. 580, 1835 (perhaps a misprint for *Jassus* (*Platymetopius*) *acutus* Say).

Jassus productus Walk., Homop. iii, p. 891, 1851 (doubtless a *Platymetopius*, perhaps *P. acutus* Say).

Jassus leucomelas Walk., Homop. Suppl. p. 272, 1858.

Jassus divisus Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 472, 1877 (may belong to *Cicadula*. See Can. Ent. xxi, p. 10, 1889).

Jassus citronellus Prov., Nat. Can. iv, p. 378, 1872.

Thamnotettix citronellus Prov., Pet. Faune Ent. Can. iii, p. 283, 1890 (probably belongs to genus *Dicraneura*).

Selenocephalus placidus Prov., Pet. Faune Ent. Can. iii, p. 280, 1889.

Subfamily TYPHLOCYBINA.

Van Duzee, Trans. Am. Ent. Soc. xix, p. 298, 1892.

Typhlocybidæ Kirschb., Cicad. v. Wiesbd. p. 16, 1868. Mayr, Tabellen p. 31, 1884. Edwards, Trans. Ent. Soc. Lond. 1886, p. 45, and 1888, p. 78.

Typhlocybæ Fieb., Katal. Europ. Cicad. p. 14, 1872; Cicad. d'Europ. i, p. 118, 1875.

Typhlocybides Sahlbg., Cicad. p. 69, 1871.

Typhlocybini Puton, Cat. Hemip. Palæ. p. 86, 1886. Woodw., Psyche vol. v, p. 211, 1889.

Genus ALEBRA Fieb.

Compsus Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 507, 1866.

Alebra Fieb., Katal. Europ. Cicad. p. 14, 1872; Cicad. d'Europ. i, p. 125, 1875. Woodw., Psyche v, p. 213, 1889.

Alebra aurea (Walsh).

Typhlocyba aurea Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 315, 1864.

Alebra aurea Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Alebra pallida (Walsh).

Typhlocyba pallida Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 315, 1864.

Alebra pallida Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Alebra binotata (Walsh).

Typhlocyba binotata Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 315, 1864.

Alebra binotata Woodw., Psyche v, p. 213, 1864.

Hab.—Illinois.

Genus EMPOASCA Walsh.

Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864.

Chloroneura Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864. See Woodw., Psyche v, p. 212, 1889.

Empoasca fabæ (Harris).

Tettigonia fabæ Harris, Ins. Inj. to Veg. 1st ed. p. 186, 1841; id. 3d ed. p. 230, 1862.

Erythroneura fabæ Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893.

Empoa fabæ Harris, Ins. Inj. to Veg. 3d ed. p. 229, 1862; note, Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864. Osborn, Proc. Iowa Acad. Sci. i, pt. ii, p. 11, 1892.

Empoasca fabæ Woodw., Psyche v, p. 213, 1889. Van Duzee, in Lintner's 9th Rept. p. 410, 1893.

Hab.—United States.

Empoasca viridescens Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864. Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Empoasca consobrina Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864. Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Empoasca malefica (Walsh).

Chloroneura malefica Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864.

Empoasca malefica Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Empoasca pura (Sta!).

Typhlocyba pura Stal. Stet. Ent. Zeit. xix, p. 195, 1858.

Empoasca pura Woodw., Psyche v, p. 213, 1889.

Hab.—Alaska.

Empoasca obtusa Walsh., Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864. Woodw. Psyche v, p. 213, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Illinois.

Empoasca maligna (Walsh).

Chloroneura maligna Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864.

Empoasca maligna Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Empoasca albopicta (Forbes).

Empoa albopicta Forbes, 13th Rept. Ill. State Ent. for 1883, 1884; 14th Rept. Ill. State Ent. for 1884, p. 117. Weed, Insects and Insecticides p. 99, 1891.

Empoasca albopicta Woodw., Psyche v, p. 213, 1889.

Tettigonia mali Le Baron, Prairie Farmer, September, 1853.

Empoasca mali Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 12, 1892.

Hab.—Illinois.

Empoasca aureoviridis (Uhler).

Typhlocyba aureoviridis Uhler, Bull. U. S. Geol. and Geog. Surv. iii, p. 474. 1877.

Empoasca aureoviridis Woodw., Psyche v, p. 213, 1889.

Hab.—Colorado.

Empoasca bardi Goding. Ent. News i, p. 123, 1890.

Hab.—Illinois.

Genus KYBOS Fieb.

Fieber, Verh. zool.-bot. Gesell. Wien xvi, p. 508, 1866; Cicad. d'Europ. i, p. 127. 1875.

Chloria Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 508, 1866.

Chlorita Fieb., Kat. Europ. Cicad. p. 14. 1872; Cicad. d'Europ. p. 127, 1875. See Woodw., Psyche v, p. 212, 1889.

Kybos smaragdulus (Fall.)

Cicada smaragdula Fallen, Acta Holm. p. 37, 1806.

Typhlocyba smaragdula Flor, Rhynch. Livl. ii, p. 393, 1861. Kirschb., Cicad. v. Wiesbd. p. 178, 1868.

Cicadula smaragdula Zett., Ins. Lapp. p. 298, 1840. Sahlbg., Cicad. p. 159, 1871.

Kybos smaragdulus Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 508, 1866. Edwards, Trans. Ent. Soc. Lond. 1888, p. 84. Van Duzee, Psyche v, p. 241, 1889.

Hab.—Canada, New England west to Colorado and California.

Genus DICRANEURA Hardy.

Hardy, Trans. Tynes Field Club i. p. 423, 1850. Woodw., Psyche v, p. 213, 1889.

Erythria Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 507, 1866.

Notus Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 508, 1866; Katal. Europ. Cicad. p. 14, 1872; Cicad. d'Europ. p. 126, 1875.

Dicraneura abnormis (Walsh).

Chloroneura abnormis Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864.

Dicraneura abnormis Woodw., Psyche v, p. 213, 1889.

Hab.—Illinois.

Dicraneura carinata (Stal).

Typhlocyba carinata Stal, Stet. Ent. Zeit. xix, p. 196, 1858.

Dicraneura carinata Woodw., Psyche v, p. 213, 1889.

Hab.—Alaska.

Genus TYPHLOCYBA Germ.

Germ., Silb. Rev. Ent. i, 1833. Burm., Handb. der Ent. ii, p. 107, 1835; Gen. Ins. i, genus 13, *Typhlocyba*, 1840. Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 509, 1866; Cicad. d'Europ. i, p. 128, 1875. Sahlbg., Cicad. p. 273, 1871. Woodw., Psyche v, p. 213, 1889. Edwards, Tr. Ent. Soc. Lond. 1888, p. 91.

Erythroneura Fitch, Homop. N. Y. State Cab. p. 62, 1851; id. reprint in Lintner's 9th Rept. p. 402, 1893; Trans. N. Y. State Ag. Soc. xvi, p. 392, 1856. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864. Prov., Petit. Faune Ent. Can. iii, p. 297, 1890.

Empoa Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893; Trans. N. Y. State Ag. Soc. xvi, p. 392, 1856. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864.

Anomia Fieb., Verh. zool.-bot. Gesell. Wien xvi, p. 509, 1866; Cicad. d'Europ. i, p. 129, 1875.

Typhlocyba vitis (Harris).

Tettigonia vitis Harris, Encycl. Americana vol. viii, p. 43, 1831; Ins. Inj. to Veg. 1st ed. p. 184, 1842; 3d ed. p. 227, 1862.

Erythroneura vitis Fitch, Homop. N. Y. State Cab. p. 63, 1851; Trans. N. Y. State Ag. Soc. xvi, p. 391, 1856. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864. Saunders, Ins. Inj. to Fruit p. 286, 1883. Uhler, Stand. Nat. Hist. ii, p. 246, 1884. Prov., Pet. Faune Ent. Can. iii, p. 298, 1890.

Typhlocyba vitis Woodw., Psyche v, p. 213, 1889. Weed, Insects and Insecticides p. 122, 1891, pl. iii, fig. 5.

Hab.—United States, Canada.

Typhlocyba vitifex (Fitch).

Erythroneura vitifex Fitch, Trans. N. Y. State Ag. Soc. xvi, p. 392, 1856. Prov., Pet. Faune Ent. Can. iii, p. 299, 1890.

Typhlocyba vitifex Woodw., Psyche v, p. 213, 1889.

Hab.—Canada, New England to Iowa, Colorado and Mississippi.

Typhlocyba comes (Say).

Tettigonia comes Say, Jour. Acad. Nat. Sci. Phila. iv, p. 343, 1825; id. reprint in Compl. Writings ii, p. 259, 1869.

Typhlocyba comes Woodw., Psyche v, p. 213, 1889.

Hab.—New York, Illinois, Missouri.

Typhlocyba basilaris (Say).

Tettigonia basilaris Say, Jour. Acad. Nat. Sci. Phila. iv, p. 344, 1825; id. reprint in Compl. Writings ii, p. 260, 1869.

Erythroneura basilaris Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864.

Erythroneura basalis Glover, Rept. Dept. of Ag. 1876, p. 33.

Typhlocyba basilaris Woodw., Psyche v, p. 213, 1889.

Hab.—New York, Illinois, Missouri.

Typhlocyba obliqua (Say).

Tettigonia obliqua Say, Jour. Acad. Nat. Sci. Phila. iv, p. 342, 1825; id. reprint in Compl. Writings ii, p. 259, 1869.

Erythroneura obliqua Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893; Trans. N. Y. State Ag. Soc. xvi, p. 435, 1856. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864. Prov., Pet. Faune Ent. Can. iii, p. 340, 1890.

Typhlocyba obliqua Woodw., Psyche v, p. 213, 1889.

Hab.—Canada, United States.

Typhlocyba affinis (Fitch).

Erythroneura affinis Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893.

Typhlocyba affinis Woodw., Psyche v, p. 213, 1889.

Hab.—New York, Illinois, Iowa.

Typhlocyba octo-notata (Walsh).

Erythroneura octo-notata Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 318, 1864.

Typhlocyba octonotata Woodw., Psyche v, p. 214, 1889.

Hab.—Illinois.

Typhlocyba ziczac (Walsh).

Erythroneura ziczac Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864.

Typhlocyba ziczac Woodw., Psyche v, p. 214, 1889.

Hab.—Illinois.

Typhlocyba vulnerata (Fitch).

Erythroneura vulnerata Fitch, Homop. N. Y. State Cab. p. 62, 1851; id. reprint in Lintner's 9th Rept. p. 402, 1893; Trans. N. Y. State Ag. Soc. xvi, p. 392, 1856. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864. Prov., Pet. Faune Ent. Can. iii, p. 299, 1890.

Typhlocyba vulnerata Woodw., Psyche v, p. 213, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. ii, p. 11, 1892.

Hab.—New York, Illinois, Iowa.

Typhlocyba tricincta (Fitch).

Erythroneura tricincta Fitch, Homop. N. Y. State Cab. Nat. Hist. p. 63, 1851; reprint in Lintner's 9th Rept. p. 403, 1893. Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1861. Fitch, Trans. N. Y. State Ag. Soc. xvi, pp. 392, 436, 1856.

Typhlocyba tricincta Woodw., Psyche v, p. 317, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

Hab.—New York, Illinois, Iowa.

Typhlocyba trifasciata (Say).

Tettigonia trifasciata Say, Jour. Acad. Nat. Sci. Phila. iv, p. 343, 1825; id. reprint in Compl. Writings ii, p. 259, 1869. Sign., Ann. Soc. Ent. Fr. ser. 3, iii, p. 805, 1855.

Typhlocyba trifasciata Woodw., Psyche v, p. 213, 1889. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.

Hab.—New York, Iowa, Missouri.

Typhlocyba coccinea (Fitch).

Empoa coccinea Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893.

Typhlocyba coccinea Woodw., Psyche v, p. 213, 1889.

Hab.—New York.

Typhlocyba querci (Fitch).

Empoa querci Fitch, Homop. N. Y. State Cab. p. 63, 1851; id. reprint in Lintner's 9th Rept. p. 403, 1893.

Typhlocyba querci Woodw., Psyche v, p. 214, 1889.

Hab.—New York.

Typhlocyba commissuralis Stal, Stet. Ent. Zeit. xix, p. 196, 1858. Woodw., Psyche v, p. 214, 1889.

Hab.—Sitka.

Typhlocyba australis (Walsh).

Erythroneura australis Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 317, 1864.

Typhlocyba australis Woodw., Psyche v, p. 214, 1889.

Hab.—Illinois.

Typhlocyba albicans (Walsh).

Empoa albicans Walsh, Proc. Bost. Soc. Nat. Hist. ix, p. 316, 1864.

Typhlocyba albicans Woodw., Psyche v, p. 214, 1889.

Hab.—Illinois.

? Typhlocyba rosæ (Harris).

Tettigonia rosæ Harris, Ins. Inj. to Veg. 3d ed. p. 229, 1862.

? Erythroneura rosæ Prov., Pet. Faune Ent. Can. iii, p. 299, 1890.

Typhlocyba rosæ? Woodw., Psyche v, p. 214, 1889.

Hab.—Canada, United States.

Uncertain Species.

Erythroneura mali Prov., Pet. Faune Ent. Can. iii, p. 298, 1890.
Typhocyba unica Prov., Pet. Faune Ent. Can. iii, p. 340, 1890.

ADDITIONS.

Page 289, under genus **DORYCEPHALUS** read:

Dorycephalus platyrhynchus Osborn, Can. Ent. xxvi, p. 216, 1894.
Dorycephalus sp. Osborn, Proc. Iowa Acad. Sci. i, pt. 2, p. 11, 1892.
Hab.—Iowa.

Page 291, after Platymetopius frontalis add:

Platymetopius loricatus Van Duzee, Bull. Buff. Soc. Nat. Sci. v, p. 205, 1894.
Hab.—California.

Platymetopius fuscifrons Van Duzee, Bull. Buff. Soc. Nat. Sci. v, p. 206, 1894.
Hab.—Arizona.

Page 293, for Deltocephalus fuscinervosus Van Duzee, read as reference: Bull. Buff. Soc. Nat. Sci. v, p. 207, 1894.

Page 293, for Deltocephalus concentricus Van Duzee, read as reference: Bull. Buff. Soc. Nat. Sci. v, p. 208, 1894.

Page 294, for Allygus costomaculatus Van Duzee, read as reference: Bull. Buff. Soc. Nat. Sci v, p. 207, 1894.

Page 295, after Athysanus anthracinus Van D. read:

Athysanus gammaroides Van Duzee, Bull. Buff, Soc. Nat. Sci. v, p. 209, 1894.
Hab.—Kansas, Colorado.

On same page omit the next, or last, species: *Athysanus* Van D. from Florida.

Page 296, for Eutettix southwicki Van Duzee, read as reference: Bull. Buff. Soc. Nat. Sci. v, p. 209, 1894.

On same page add as the next species the following:

Eutettix slossoni Van Duzee, Bull. Buff. Soc. Nat. Sci. v, p. 210, 1894.
Hab.—Florida.

ERRATA.

Page 251, line 28, for of. cit. *read* op. cit.
" 253, line 21, for Cynidæ *read* Cydnidæ.
" 260, line 8, for ferriginoides *read* ferruginoides.
" 277, line 5 from bottom, for Mem. Soc. Stal. *read* Mem. Soc. Ital.
" 280, line 17, for Teitigonia *read* Tettigonia.
" 288, line 1, for 1940 *read* 1840.
" 289, line 27, for 813 *read* 113.
" 290, line 22, dele fig. 2.
" 291, line 6 from bottom, for 1882 *read* 1892.
" 292, line 24, for topl. *read* tafl.
" 293, line 5, for 1879 *read* 1878.
" 293, line 6, for p. 5 *read* p. 32, and add: Slosson, Ent. News v, p. 5, 1894.
" 293, line 23, for 1864 *read* 1884.
" 293, line 2 from bottom, for p. 65 *read* p. 55.
" 295, line 2, for p. 288 *read* 298.
" 296, line 25, for Toll. *read* Fall.
" 296, line 26, for Coll. *read* Cat.
" 296, line 27, after 1890 place a period and drop parenthesis to next line and begin sentence with a capital.
" 297, line 23, read: Psyche iv, p. 241, 1885.
" 297, line 28, for Nan Duzee *read* Van Duzee.

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DESCRIPTIONS OF NEW PARASITIC HYMENOPTERA.

BY WILLIAM H. ASHMEAD.

(Paper No. 1.)

It is my intention, in a series of papers with the above title, to describe the unnamed material in the different families of the parasitic Hymenoptera, which has accumulated in my collection during the past fifteen years or more, and then follow with synopses of the different families, genera and species.

No doubt some objection will be made to thus publishing so many isolated descriptions, but it seems to me, considering the immense number of species still undescribed in our collections and the new ones constantly turning up, that such a course is justifiable, as synopses published to-day, in most of the groups, are valueless in a few months.

The present paper contains the descriptions of many of the new species reared by Prof. A. D. Hopkins, of the West Virginia Agricultural Experiment Station, at Morgantown, who has done so much towards making known the parasites of our destructive forest insects in the past three or four years, and whose work is of inestimable value.

Subfamily PERILAMPINÆ.

EUPERILAMPUS Walker.

1871.—Notes on Chalcididæ, pt. iv, p. 67.

(Type *P. gloriosus* Walk.)

Euperilampus opacus sp. n.

♀.—Length 4 mm. Black, opaque, with coarse, umbilicate punctures; tarsi brown; head as wide as the thorax, emarginate, the frons with a deep antennal furrow, the face shorter than wide; antennæ 13-jointed, short, not longer than the width of head, the flagellar joints all short, much wider than long. Pronotum quadrate, narrowed anteriorly into a slight neck; mesonotum broader than long, the parapsidal furrows indistinct, obliterated posteriorly; scutellum produced behind into a spine like process that projects over the metanotum; metathorax short, rugulose; wings hyaline, the nervures as in *Perilampus*, brown-black; tegulæ large, black, punctate. Abdomen oblong-oval, as long as the thorax, subsessile, coarsely, reticulately punctate, the second segment occupying nearly the whole surface.

Hab.—Denver, Col. Type in coll. Amer. Entomological Society. Described from a single specimen taken in June.

Subfamily Eurytominæ.

In "Entomologica Americana," vol. iv, 1888, p. 42, I gave a generic table of this subfamily, indicating many new genera, but without designating types, as it was my intention to follow it shortly with a descriptive paper, giving not only the full descriptions of the genera, but a synopsis of our species.

Several years have now passed and I am still at work on a synopsis, but as this is still unfinished, it seems to me advisable to no longer delay in indicating and describing the types of these genera, and I here take the opportunity of doing so; also to indicate three other genera at that time unknown to me, which I believe should be placed in this group, viz.: *Eudoxinna* Walker, placed by Walker and Westwood with the Chalcidinæ; *Chryseida* Spinola, placed by Spinola with the Pteromalinæ, and by Westwood with the Perilampinæ; and *Axima* Walker, placed by Walker and Kirby with the Chalcidinæ, and by Cameron into a subfamily called Aximinæ.

All of these genera are known to me in nature, and they are placed here after careful study.

DECATOMA Spinola.

1811.—Ann. du Mens. d'Hist. xvii, p. 151.

(Type *Diplolepis adonidum* Rossi.)

EUDECATOMA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *Decatoma batatoides* Ashm.)

Eudecatoma batatoides Ashm.

Decatoma batatoides Ashm., Can. Ent. vol. xiii. p. 136.

SYSTOLE Walker.

1832.—Ent. Mag. vol. i, p. 22.

(Type *S. albipennis* Walk.

Systole minuta sp. n.

♂ ♀.—Length 1 mm. Robust, black, shining, the head and thorax faintly sculptured, the abdomen highly polished; legs, except knees, tibiæ and tarsi, black; knees, tibiæ and tarsi, except a blotch outwardly on middle tibiæ and most of hind tibiæ, honey-yellow; palpi white; mandibles rufous. Antennæ black, or brown-black, the scape yellowish at extreme base; in the ♀ the flagellum is clavate-brown, the funicular joints 2–5 transverse, club 3-jointed, stout, fusiform; in the ♂ the flagellum is filiform-submoniliform, black, with long white hairs, the first joint twice as long as the second, joints 2–4 moniliform, club 3-jointed, the joints compacted, the last being very small. Wings hyaline, the venation brownish yellow, the marginal nervure short, stout, not quite as long as the stigmal, which terminates in a small knob.

Hab.—Jacksonville, Fla.

Described from several specimens captured on *Phlox*.

SYSTOLODES Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *S. brevicornis.*)

Systolodes brevicornis sp. n.

♀.—Length 1.5 mm. Black, shining, feebly shagreened, with traces of very shallow umbilicate punctures; knees, anterior tibiæ, except a blotch outwardly, and all tarsi, except sometimes the posterior pair, honey-yellow. Antennæ 10-jointed, short, subclavate, black, the first joint of funicle slightly the longest joint, the four following about equal, quadrate, club fusiform, 3 jointed, as long as the last three joints of funicle united. Wings hyaline, the nervures light brown, the marginal not longer than the stigmal, the latter ending in a knob with a slight uncus. Abdomen globose, subsessile, not longer than the thorax, the first four body segments very nearly equal, the following retracted within the fourth, and not visible, or only the smallest particle visible.

♂.—This sex differs from the ♀ only as follows: The antennæ are longer, with long, white hairs; the pedicel very small; the funicle only 4 jointed, the joints excised at apex, the first the longest, about two and a half times as long as wide, the following gradually shortening, the last being only a little longer than wide; club 3-jointed, as long as the last two funicular joints united.

Hab.—Ottawa and Cap Rouge, Canada. Types in coll. Ashm.

Described from specimens received some years ago from Mr. W. Hague Harrington and Abbe Provancher. This genus apparently connects *Systole* Walk. with *Bruchophagus* Ashm., and could be easily mistaken for specimens of *Bruchophagus* (*Eurytoma*) *funebris* How.

XANTHOSOMA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *X. nigricornis.*)

Xanthosoma nigricornis sp. n.

♀.—Length 2.5 mm. Brownish yellow, shagreened, the lobes of the mesonotum almost smooth, at the most very delicately shagreened, the scutellum more coarsely sculptured; eyes and a stripe on posterior tibiæ brown; ocelli and flagellum black. Head transverse-quadrate, wider than thorax, with a frontal sulcus; antennæ 10-jointed (or 11-jointed, counting a small ring-joint), subfiliform, scarcely thickened toward apex, attached below the middle of face, the scape very slender, a little longer than half the length of the flagellum, the pedicel small, rounded, the funicle 5-jointed, the joints submoniliform, subequal, the first slightly the longest, the club fusiform, 3-jointed, almost as long as the last three joints of funicle united. Thorax with the pronotum transverse-quadrate, a little narrower than the mesonotum, but fully as long, or about twice as wide as long; mesonotum trilobed, the lobes convex; scutellum convex, rounded behind, the axillæ touching each other at its base; metanotum with a median sulcus; wings hyaline, the marginal nervure about twice as long as the stigmal, the postmarginal not longer than stigmal. Abdomen subsessile, conic-ovate, as long as the head and thorax united, the first three body segments nearly equal in length, the fourth twice as long as the third, the fifth and sixth very short, the fifth a little the shorter, seventh very short.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

RILEYA Ashmead.

1888.—"Entom. Amer.," vol. iv, p. 42; Bull. No. 3, Kans. Exp. Sta. App. p. iii.

(Type *R. cecidomyiæ* Ashm.

Rileya mellea sp. n.

♀.—Length 1.8 mm. Brownish yellow or honey-yellow; eyes, ocelli and flagellum, brown; legs pale yellowish or whitish; wings hyaline, the nervures pale brownish, the marginal nervure about two-thirds the length of the subcostal, the stigmal less than one-third the length of the marginal ending in a small knob with an uncus, the postmarginal long.

Hab.—Indian River, Fla. Types in National Museum.

Described from several specimens reared July, 1885, from a gall (?Cecidomyious) on Skunk Bush.

Rileya œcanthi sp. n.

♀.—Length 6 mm. Much elongate, black, feebly punctate, shining; tips of femora, tibiæ and tarsi honey-yellow; face elongate, with two furrows extending from base of antennæ to clypeus; antennæ 13-jointed, with three ring-joints. Pronotum quadrate, longer than the mesonotum; parapsides distinct; wings hyaline, the nervures blackish, the marginal vein very long, longer than the subcostal, the stigmal vein not quite one-third the length of marginal, ending in a stigma and an uncus; postmarginal extending to the apex of the wing. Abdomen subsessile, cylindrical, pointed at apex and about three times as long as the head and thorax united, feebly sculptured, shining, the fourth and fifth segments very long.

♂.—Length 2.5 mm. Agrees with the ♀ in all respects, except in its smaller size, and in having a less pointed and shorter abdomen, the latter being only one-third longer than the head and thorax united.

Hab.—Lincoln, Neb. and Atlantic County, N. J. Types in National Museum and coll. Ashmead.

The specimen in the National Museum is labeled as having been reared by Prof. L. Bruner, from eggs of *Oecanthus niveus* De Geer; the specimens in my collection, 1 ♂ 1 ♀, were received from Prof. John B. Smith, and were reared by him, together with four specimens of a small Braconid, from a stalk of some composite plant.

BEPHRATA Cameron.

1884.—"Biologia Central-Americana," Hym. p. 109.

(Type *B. ruficollis* Cam.)

Bephrata cubensis sp. n.

♀.—Length 8 mm. Rufous, coarsely, umbilicately punctate; scape, except apex above, legs and tegulæ, pale ferruginous; flagellum brown; wings hyaline, with a dusky blotch on the disc below the marginal nervure, the latter being a little longer than the stigmal; the stigmal ending in a small knob, not longer than the postmarginal. First flagellar joint about as long as the scape, but stouter, the following joints longer than thick; frons with a deep antennal furrow. Abdomen longer than the head and thorax united, compressed, round-

edly elevated dorsally towards base, then depressed and curving upwards at tip, the ovipositor slightly projecting; petiole very short, wider than long; sides of abdomen with white hairs.

Hab.—Cuba. Types in coll. American Entomological Society. Described from three specimens.

EUDOXINNA Walker.

1862.—*Sosxetra* Walk., Trans. Ent. Soc. Lond. (3) vol. i, p. 370.

1863.—*Eudoxinna* Walk., l. c. ii, p. 305; Westw., Thes. Ent. Oxon. p. 137 (1874).

(Type *E. transversa* Walk.)

Eudoxinna transversa Walk.

Sosxetra transversa Walk., l. c. ii, p. 306; Westw., Thes. Ent. Oxon. p. 537, pl. xxv, 6, 9.

Hab.—Brazil.

DECATOMIDEA Ashmead.

1888.—"Entomologica Americana," vol. iv, p. 42 (June).

(Type *D. xanthochroa* Ashm.)

Decatomidea xanthochroa sp. n.

♀.—Length 3.5 mm. Yellow, a spot on vertex, transverse-quadrate spot on middle of pronotum, middle lobe of mesonotum, scutellum, but not the axillæ, metathorax, except pleura, and abdomen, except the venter, black. Head transverse, a little wider than thorax, with a deep antennal furrow, the margins of the furrow being ridged or carinated; antennæ short, the flagellum subclavate, light brown, the scape and pedicel yellow, the scape very slender. Pronotum transverse-quadrate, fully twice as wide as long; mesonotum nearly one-half longer than the pronotum with the parapsidal furrows obliterated posteriorly; scutellum convex, rounded off behind, the axillæ triangular, about half their width from each other; metanotum very short, rounded off behind. Wings hyaline, pubescent, the venation yellowish, the marginal veins linear, but somewhat thickened, its length being about four times its width; stigmal vein oblique, subclavate, about two-thirds the length of the marginal. Abdomen subsessile, short-ovate, subcompressed, not quite as long as the thorax, smooth and highly polished; first and second (body) segments about equal, the second scarcely half the length of the third, fourth segment fully as long as the second and third united, the fifth as long as the second, the sixth very short.

Hab.—Jacksonville, Fla. Type in coll. Ashmead.

Decatomidea polygraphi sp. n.

♀.—Length 2.5 mm. Black, opaque, umbilicate punctate; mandibles rufous, with small black teeth; scape and legs light brownish yellow; anterior femora above, hind coxæ, hind femora and tibiæ, except at base and apex, black; anterior angles of pronotum with a large yellow, or yellowish white spot; eyes whitish. Head transverse, wider than thorax, the occiput concave, the frons with an antennal furrow; antennæ finely pubescent, the funicle 5-jointed, the first joint longer than wide, the four following submoniliform, a little wider than long; club stouter, ovate, 3-jointed, the joints compacted. Thorax with the pronotum transverse-quadrate, a little wider anteriorly than posteriorly; meso-

notum not quite as long as the pronotum, with distinct parapsidal furrows; metanotum short, abrupt; wings hyaline, the marginal vein a little longer than the stigmal, postmarginal slightly longer than stigmal. Abdomen oval, highly polished, with a very short petiole, the fifth segment a little more than twice as long as the fourth, the sixth and seventh segments short, sparsely pubescent.

Hab.—Morgantown, W. Va. Types in coll. West Virginia Experiment Station.

Described from two ♀ specimens bred by Prof. A. D. Hopkins from *Polygraphus rufipennis* in spruce.

CHRYSEIDA Spinola.

1840.—Guer., Mag. de Zool. Ins. pl. xlii.
1874.—Westw., Thes. Ent. Oxon. p. 140.
(Type *C. superciliosa* Spin.)

Chryseida cyanea Fabr.

Chalcis cyanea Fabr., Syst. Piez. p. 164.

Hab.—Brazil.

I have recognized this long lost species from a single specimen collected by Mr. Herbert H. Smith at Chapada in April. It measures 8 mm. in length, is very coarsely rugoso-punctate, almost entirely blue, with only some slight metallic reflections, especially in the coarse punctures on the head, mesopleura and coxæ, the knees and tarsi white, ocelli red, the wings subfuscous, while the abdomen is conic-ovate, finely closely punctate.

EURYTOMA Illiger.

1807.—Illiger, in Rossi Faun. Etr. ii, p. 127.
(Type *E. plumata* Ill.)

Eurytoma cleri sp. n.

♀.—Length 4 mm. Black; scape and legs, except hind coxæ, honey-yellow, or reddish yellow; flagellum about three times as long as scape; joints of funicle nearly equal, about twice as long as thick; pronotum transverse-quadrate, not quite as long as the mesonotum; scutellum as long as the mesonotum; metanotum rather long, impressed medially, tegulæ rufous. Wings hyaline, the venation light brown, the submarginal towards base pale or yellowish; the marginal vein is not quite twice as long as the stigmal, the postmarginal much longer than the stigmal. Abdomen subsessile (the petiole not apparent), elongate, conically pointed, one and a half times as long as the head and thorax united, highly polished, the second and fifth segments short, about equal, the first as long as the second and third united, the fourth a little longer, the sixth about half as long as the fourth.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from a Clerid larva found in scrub pine.

In the length of the metanotum and the long conical sessile abdomen, the species is quite unique in the genus.

Eurytoma crassinevra sp. n.

♀.—Length 2.5–3 mm. Black, opaque, clothed with a short, glistening pubescence; head and thorax, umbilicate punctate; scape beneath, knees, tips of the tibiæ and all tarsi, except last joint, brownish yellow, the tarsi sometimes whitish, tegulæ rufopiceous; abdomen conic-ovate, subcompressed, highly polished, the petiole a little longer than thick, punctate. Head transverse, as wide as the mesonotum, about two and one-half times as wide as thick antero-posteriorly, cheeks above flat, below toward mouth a little broader and with a slight margin; frons with an antennal furrow; face covered with a short, rather dense, white pubescence; mandibles piceous-black; palpi fuscous; antennæ (without counting ring-joints) 10-jointed, the flagellum subclavate, pubescent, slightly more than three times as long as the scape; funicle 5-jointed, the first joint the longest, about two and a half times as long as thick at tip, the following cup-shaped, scarcely longer than thick; club fusiform, much thicker than funicle, 3-jointed, the joints compactly united, as long as the first and second joints united. Thorax with the parapsidal furrows well defined; pronotum narrower than the head or mesonotum, transverse-quadrate, as long as the mesonotum, or with the conically produced neck longer; scutellum convex, a little longer than the mesonotum; metanotum very short, medially impressed. Wings hyaline, pubescent, the venation yellowish; the marginal vein is much incrassated, a little wider at apex than at base, one and one-half times as long as the stigmal, which terminates in a small rounded stigma with a slight uncus; postmarginal very little longer than the stigmal. Abdomen conic-ovate, as long as the thorax, the length of the body (excluding the short petiole) about three times as long as wide, as viewed from the side dorso-ventrally, the fourth body-segment as long as the first, second and third united.

♂.—Length 1–2.5 mm. This sex varies greatly in size and color, although otherwise, except in the usual sexual differences, it agrees with the female. One specimen is entirely black, with the legs colored as in ♀; another has the scape, all the legs (including coxæ), except a blotch on hind femora, brownish yellow; while a third has the face, scape, the legs entirely, pronotum, except median dorsal stripe, mesopleura, scapulæ, axillæ and metathorax, except the median depression on dorsum and petiole, brownish yellow. The antennæ have the first four flagellar joints contracted or petiolated at apex, the first being the longest, all with very long white hairs, the club is conic, composed of three joints compactly united and no longer than the first funicular joint; the flagellum varies from a light brown to black. The abdomen is attached to the metathorax by a long petiole, which is a little longer than the hind coxæ, of a uniform thickness throughout and finely shagreened, the body, or abdomen proper, is ovate, subcompressed, very little longer than the petiole and with a deep longitudinal furrow above toward base, the first segment occupying fully two-thirds of its length, the following segments being more or less retracted.

Hab.—Morgantown, W. Va. Types in West Virginia Agricultural Experiment Station.

Described from six female and three male specimens bred by Prof. A. D. Hopkins as follows: one female labeled from a Scolytid in plum; three females from *Scolytus rugulosus* in peach, one male from the same Scolytid in cherry, and two females and two males from the same Scolytid in apple.

Eurytoma agrili sp. n.

♀.—Length 4.5 mm. Head, except the vertex and occiput, which are black, the scape beneath and club of antennæ, the legs, except the hind coxæ, and abdomen beneath, brownish yellow. The head and thorax are umbilicate punctate, black, covered with a short, sparse, white pubescence; abdomen much compressed, highly polished, black, attached to to the metathorax by a slender petiole, which is nearly as long as the hind coxæ, shagreened and narrowed toward the apex; the body of abdomen, viewed from the side, appear almost orbicular and two-thirds the length of the thorax, its regularity of outline being broken by the conically pointed projecting valves of the ovipositor; the first, third and fourth segments are about of an equal length and occupy most of its surface, the second, fifth and sixth segments being very short. The head is transverse, with the occiput deeply roundedly emarginated for the reception of the conically produced neck of the pronotum; frons with an antennal furrow; flagellum filiform, scarcely thickened toward apex, the joints elongate, the first the longest more than half the length of the scape, the following to club, very gradually shortening, the 3-jointed club scarcely as long as the first joint of funicle. Wings hyaline, the venation pale yellowish, the marginal vein not quite twice as long as the stigmal, the latter scarcely as long as the postmarginal, subclavate, truncate at apex.

Hab.—Morgantown, W. Va.

Described from one ♀ specimen bred by Prof. A. D. Hopkins from *Agrilus otiosus* in hickory bark.

Eurytoma lyeti sp. n.

♀.—Length 2.6 mm. Robust, coarsely umbilicate-punctate and clothed with a whitish pubescence; face, lower part of cheeks, scape, pedicel, trochanters, tips of femora and all tibiæ and tarsi, brownish yellow. Thorax with the pronotum very large and broad, fully as wide as the mesonotum and longer; scutellum a little longer than the mesonotum, less convex than usual; metanotum abruptly declining with a deep, longitudinal median furrow; wings hyaline, the venation light brown, the marginal vein less than twice as long as the stigmal, the postmarginal nearly twice aa long as the stigmal. Abdomen ovate, not at all compressed, attached to the metathorax by a long petiole, which is fully as long as the hind coxæ and coarsely punctate; body of abdomen highly polished, the first and third segments nearly equal, the second very short, the fourth much the longest, as long as the three preceding united, fifth very short, sixth much longer, subopaque, pubescent.

Hab.—Morgantown, W. Va. Bred Sept. 10, 1893, by Prof. A. D. Hopkins from *Lyctus striatus* living in hickory.

Eurytoma tomici sp. n.

♂.—Length 1.5 mm. Black; knees, tips of tibiæ and tarsi whitish; antennæ reaching to the tegulæ, the scape somewhat dilated beneath; funicular joints strongly constricted or pedunculated at apex, with long white bristles, the dilated portion of the joints being on the average about twice as long as wide; club conical, twice as long as the last funicular joint. Thorax with the pronotum and mesonotum about equal in length, the former, however, slightly the narrower; scutellum longer than the pronotum and less distinctly umbilicate punc-

tate; metanotum sloping off behind and not so abruptly declining as is usual in the genus, approaching more nearly typical *Isosomæ;* tegulæ black. Wings hyaline, the venation light brown, the marginal vein one and a half times as long as the stigmal, the latter clavate with an uncus, the postmarginal vein not longer than the stigmal. Abdomen small, oval, with a petiole as long as the hind coxæ and finely punctulate; body of abdomen highly polished with the third segment the longest, the following retracted.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Tomicus plagiata.*

The species comes nearest to *S. crassineura*, but is readily separated by the less thickened marginal vein, the dilated scape of antennæ, and the larger metanotum.

Eurytoma phlœotribi sp. n.

♀.—Length 1.5–2.1 mm. Black, scape beneath, trochanters, knees, tips of tibiæ and tarsi, honey-yellow or whitish; occasionally the face below, cheeks and anterior and middle coxæ are honey-yellow; the femora and tibiæ, except at both ends, being obfuscated. Head subquadrate, convex before, the frons deeply impressed for the reception of antennæ; flagellum subclavate, two and one-half times as long as the scape, the funicular joints submoniliform, the club large, fusiform, much stouter than funicle and half its length. Thorax with the pronotum longer than the mesonotum, but narrower; scutellum longer than the pronotum; metanotum short, declining, without a median impression, Wings hyaline, the venation yellowish, the marginal vein very slightly longer than the stigmal, somewhat stout, the postmarginal not longer than stigmal. Abdomen with a distinct, long, slender petiole, which is much longer than the hind coxæ; the body of abdomen is subcompressed, much shorter than the thorax, the fourth segment of which is the largest, occupying nearly the whole apical half.

Hab.—Morgantown, W. Va. Bred March 23, 1893, by Prof. A. D. Hopkins, from *Phlœotribus frontalis* Oliv. living in Mulberry.

Eurytoma magdalidis sp. n.

♀.—Length 2.6 mm. Entirely black, except knees, extreme tips of tibiæ and the tarsi, which are white. Head wider than thorax, or twice as wide as thick antero-posteriorly, the frons with an antennal furrow; flagellum not quite three times as long as the scape, subfiliform, the club scarcely thicker than the funicle; the first funicular joint is the longest, about one-half longer than the second, the two following subequal with the second, the fifth scarcely longer than wide; club conical, as long as the pedicel and first funicle united. Thorax with the pronotum not quite as wide, nor as long as the mesonotum; scutellum very slightly longer than the mesonotum; metanotum obliquely declining. Wings hyaline, the venation light brown, the marginal vein less than twice as long as the stigmal, the latter terminating in a stigma with quite a distinct uncus that is curved or directed upwards; postmarginal longer than stigmal. Abdomen distinctly petiolated, conic-ovate, longer than the head and thorax united, the petiole being nearly three times as long as thick, the segments 2, 3, 4, 6 and 7, very nearly equal in length, segment 5 a little longer than 3 and 4 united.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Magdalis armicollis* living in elm.

Eurytoma phlœosini sp. n.

♂.—Length 3 mm. Approaches nearest to the larger forms of males of *E. crassineura*, but differs at once in the following structural characters: The flagellum is nearly twice as long as in that species, extending to the tip of the metathorax, the funicular joints being much longer, each joint with two whorls of very long white bristles, the scape entirely black; marginal vein not so stout, the postmarginal distinctly longer than the stigmal. Legs, except trochanters and tips of femora, honey-yellow, the tarsi whitish; petiole of abdomen nearly twice as long as the hind coxæ, delicately shagreened with a furrow above toward apex, while the body of abdomen is small, subovate, the terminal segments retracted, the second and fourth segments subequal, the third as long as the second and fourth united, the first longer, with a petiolar furrow above at base.

Hab.—Morgantown, W. Va. Bred by A. D. Hopkins from *Phlœosinus dentatus* living in cedar.

EURYTOMOCHARIS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *E. minuta.*)

Eurytomocharis minuta sp. n.

♀.—Length 1 mm. Black; scape and legs, except coxæ and hind femora, brownish yellow; coxæ black, the hind femora fuscous; flagellum light brown; tegulæ and venation pale or whitish. Head wider than the thorax, the occiput concave, the frons convex, without an antennal furrow; antennæ 10-jointed, clavate, pubescent; pedicel a litttle longer than the first funicular joint; funicle 5-jointed, the joints moniliform, very slightly increasing in size; club large, ovate, much thicker than the funicle and as long as the last three funicular joints united. Thorax short, convexly elevated, the pronotum nearly three times as wide as long, the mesonotum about as large as the pronotum, with distinct furrows, scutellum convexly rounded, a little longer than the mesonotum, metanotum short. Wings hyaline, the marginal vein a little longer than the stigmal, slender. Abdomen ovate, pointed at tip, not longer than the head and thorax united, smooth, polished, with a very short petiole; first body segment a little longer than the second, the second and third subequal, fourth very long, occupying the rest of the surface, the following segments retracted, scarcely visible.

The ♂ has the flagellum black, the funicle 4-jointed and each joint peduncled at apex and nearly equal in length, the thickened part being about one and one-half times as long as thick, the club conical, 3-jointed, as long as the scape; the petiole of abdomen is longer than hind coxæ, smooth, polished, the abdomen proper short-ovate, the first segment two-thirds the length of the petiole with a furrow at base above, the second only half its length, the following very short subequal.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

PHYLLOXEROXENUS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Eurytoma phylloxeræ* Ashm.)

BRUCHOPHAGUS Ashmead.

1888.—Entomolog. Amer. vol. iv, p. 42 (June).

(Type *B. borealis.*)

Bruchophagus borealis sp. n.

♀.—Length 2 mm. Black, pubescent; scape and legs, except hind coxæ and their femora toward base, which are black, brownish yellow. Wings hyaline, the tegulæ and venation yellowish, the marginal vein scarcely as long as the stigma; flagellum short, subclavate, the joints submoniliform, wider than long after the first, and gradually increasing in width. Abdomen subsessile, nearly globose, polished, not longer than the thorax.

In the ♂ the scape is pale only at the basal one-third, the first and second funicular joints alone pedicellated, the third and fourth only slightly longer than thick, the bristles are not, or scarcely longer than the joints; legs, except hind coxæ, brownish yellow, while the body of abdomen is small, globose, attached to the metathorax by a petiole as long as the hind coxæ.

Hab.—Ottawa, Canada. Types in coll. Ashmead.

Bred by Mr. W. H. Harrington from a species of *Bruchus*.

Bruchophagus mexicanus sp. n.

♂ ♀.—Length 2.5 mm. Differs from above in having all coxæ, the femora, except tips, and the hind tibiæ medially, black; tegulæ dark piceous. Abdomen in ♀ two-thirds the length of thorax, polished, but under a high power showing delicate reticulations, the petiole short, but distinct.

In the ♂ the scape is entirely black, dilated beneath, the joint of funicle with the club part three times as long as thick.

Hab.—Las Cruces, N. Mex. Bred by Prof. Tyler Townsend from *Bruchus albiscutellaris* Horn.

Bruchophagus funebris How.

Eurytoma funebris How U. S. Ag. Rept. 1879, p. 196.

Hab.—Eastern and Western States (common).

EVOXYSOMA Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Systole brachyptera* Ashm.)

Evoxysoma brachyptera Ashm.

Systole brachyptera Ashm., Trans. Am. Ent. Soc. xiii, p. 126.

Hab.—Florida.

AXIMA Walker.

1862.—Trans. Ent. Soc. Lond. (3) i, p. 373.

(Type *A. spinifrons* Walk.)

Axima spinifrons Walk., Trans. Ent. Soc. Lond. (3), i, 1862, p. 373.

Hab.—St. Paul, Brazil.

Axima zabriskiei How., Ins. Life ii, 1890, p. 366, figs. 68, 69, ♀, 70 ♂.

Hab.—Nyack, N. Y., New Jersey and Agricultural College P. O., Michigan.

ISOSOMA Walker.

1832.—Ent. Mag. vol. 1, p. 14.

(Type *Ichneumon verticillatus* Fabr.)

Isosoma albomaculatum sp. n.

♀.—Length 2.2 mm. Black, shining, feebly punctate; anterior lateral angles of pronotum with a large, oblong, white spot; palpi whitish; knees and all tarsi, except the last joint, yellowish white; antennæ bearded, the funicle 5-jointed, the first joint the longest, nearly three times as long as thick, the others gradually shortening, fluted; club stouter than funicle, 3-jointed; mandibles reddish yellow; eyes whitish. Pronotum a little wider than long, quadrate; mesonotum with the lateral lobes convex, much shorter than the middle lobe; scutellum rounded behind, convex; metanotum rugose. Wings hyaline, pubescent, the tegulæ piceous, the venation light brown or yellowish, the marginal nervure about one and a half times as long as the stigmal, the latter about as long as the postmarginal. Abdomen subsessile, ovate, much broader than the thorax, and as long as the head and thorax united, highly polished, the segments nearly equal in length.

♂.—Length 1.5-2 mm. Agrees with ♀ in color, but the abdomen is smaller, not wider than the thorax and shorter, with a distinct, but short, finely rugose petiole, the antennæ being long, with whorls of long hairs, the flagellar joints nearly as long as the scape, each joint constricted or narrowed at apex.

Hab.—Morgantown, W. Va. Types in coll. West Virginia Experiment Station.

Described from two ♀ and eleven ♂ specimens.

Isosoma montanum sp. n.

♀.—Length 5 mm. Black; scape, pedicel and legs, except coxæ, brownish yellow; flagellum brown-black; coxæ black, the posterior pair closely punctate, clothed with a glittering white pubescence at sides. Antennæ with the first flagellar joint one-third longer than the second, the following joints a little longer than wide. Wings hyaline, the nervures pale yellowish, the marginal nervure thick, about twice the length of the stigmal, the latter forked at tip, the postmarginal very little longer than the stigmal. Abdomen pointed-ovate, polished, the segments toward base exhibiting a fine alutaceous sculpture, segment 5 a little the longest, with some sparse, white hairs at sides, segments 6 and 7 covered with white hairs.

♂.—Length 3.5 mm. Tips of femora, tibiæ at base and apex, and the stria, brownish yellow, antennæ black, the scape dilated beneath, not longer than the first flagellar joint, punctate above, smooth beneath; all flagellar joints fluted and pedicellated at apex, pilose, the first joint twice as long as the second, the following very nearly equal with the second. Abdomen with a very stout, coarsely rugose petiole, which is as long as the hind coxæ and thicker at base than at apex; segments 3, 4 and 5 about equal, the following very short.

Hab.—Montana and Colorado. Types in coll. American Entomological Society.

Isosoma nevadense sp. n.

♂.—Length 5 mm. Black; scape and legs, except coxæ, brownish yellow, tarsi paler. Antennæ short; scape cylindrical, twice the length of the first funicular joint; joints of funicle very briefly pedicellated at apex, the first only a little longer than the second, the others subequal, about twice as long as thick, the whorls of hair short and sparse; hind coxæ long, conical, shagreened; metathorax coarsely rugose; wings hyaline, the nervures light brown, the marginal one and a half times as long as the stigmal, the latter ending in a knob with an uncus; postmarginal a little longer than the stigmal. Abdomen ovate, as long as the thorax, piceous beneath, the fourth segment as long as the fifth and sixth united; petiole long, rugose, longer than the hind coxæ, more than four times as long as thick.

Hab.—Nevada. Type in coll. American Entomological Society.

ISOSOMORPHA Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *I. europæ*.)

Isosomorpha europæ sp. n.

♀.—Length 4.5 mm. Black, finely rugulose; scape, mandibles, venation, a spot on anterior angles of pronotum, trochanters, tips of femora, the tibiæ, except hind pair, and all tarsi, brownish yellow. Head as wide as the mesonotum, viewed from in front, subtriangular, viewed from above, quadrate, the vertex slightly impressed and the impression extending into a deep frontal furrow whose sides are sloping, the anterior ocellus being placed directly in this furrow; antennæ 10-jointed, the flagellum pubescent, the first joint the longest, about twice as long as the pedicel, the following joints subequal, the club oblong, 3-jointed. Thorax elongated, the pronotum transverse-quadrate, not quite as long as the mesonotum; the latter with well-defined parapsides; scutellum a little longer than the middle lobe of mesonotum; metathorax quadrate, squarely truncate behind, the superior edge of the truncature distinctly margined, the dorsum distinctly longitudinally striated; wings hyaline, the marginal vein a little longer than the stigmal. Abdomen ovate, two-thirds the length of thorax, with an exceedingly short, rugose petiole, the body segments all very nearly equal in length, except the first, which is fully as long as the second and third united, and one of the characters distinguishing the genus.

Hab.—Lille, France. Type in coll. Ashmead.

Described from a single ♀ specimen, received some years ago from Mons. L. Lithierry, which was confused with several specimens of *Isosoma filicorne* Boh.

In the shape of the head and metathorax it differs widely from any other Eurytomid described, the metathorax being similar to those found in the Bethylids i. e., *Epyris*, *Mesitius*, etc.

Isosomorpha tibialis sp. n.

♀.—Length 4 mm. Black; trochanters, tips of femora, and all tibiæ and tarsi, brownish yellow; anterior angles of pronotum with a reddish spot; antennæ 12-jointed, two ring-joints, the flagellum subclavate, the first joint the longest; wings hyaline, the marginal nervure twice as long as the stigmal, the latter forked at apex; abdomen oblong-oval, the petiole coarsely punctate; body smooth, polished, the first segment much longer than the two following united, the sixth segment with a delicate scaly punctuation, sparsely pubescent.

♂.—Length 3.5 mm. Antennæ filiform, the joints all long, cylindrical, pilose, but not pedicellate; scape a little shorter than the first flagellar joint dilated beneath; metanotum with a central longitudinal furrow; petiole of abdomen longer than hind coxæ, rugose, about three times as long as thick; body of abdomen oval, the first segment as long as the two following united, the apical segments retracted.

Hab.—Montana, Dallas, Oreg. Types in coll. American Entomological Society and coll. Ashmead.

Described from two ♂ and two ♀ specimens labeled from Montana (coll. Am. Ent. Soc.); and one ♀ specimen in my collection taken by Mr. E. A. Schwarz at Dallas, Oreg., May 19, 1893.

ISOSOMOCHARIS Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *I. sulcata* Ashm.)

Isosomocharis sulcata sp. n.

♀.—Length 1.8 mm. Black; spot on sides of pronotum, a small spot on hind angles of metathorax and legs, including all coxæ, brownish yellow; antennæ black or brown-black, the scape very slightly dilated beneath, the flagellum subclavate, pubescent, the pedicel long, obconical, one-third longer than the first funicular joint; funicular joints, after the first, submoniliform, very gradually increasing in width; club 3-jointed, ovate. Thorax shagreened, the middle lobe of mesonotum smooth, shining, impunctured, the metanotum long, with a shallow but distinct median sulcus, the bottom of which is transversely striated; wings hyaline, the nervures light brown, the marginal vein very long, twice as long as the stigmal. Abdomen ovate, about two-thirds the length of the thorax or a little longer, highly polished, impunctate, not compressed, the petiole wider than long, rugose, the first and third body segments long, the second about half the length of the first; those following the third very short.

Hab.—Jacksonville, Fla. Types in coll. Ashmead.

ISOSOMODES Ashmead.

1888.—Entom. Amer. vol. iv, p. 42 (June).

(Type *Isosoma gigantea* Ashm.)

Isosomodes gigantea Ashm.

Hab.—District of Columbia. Florida and St. Vincent, W. I.

PHILACHYRA Haliday (Walker).

1871.—Haliday, in Walker's Notes on Chalcididæ, pt. 1, p. 7.

(Type *Philachyra ips* Hal.)

AILOMORPHUS Walker.

1871.—Notes on Chalcididæ, pt. 1, p. 12.

(Type *A. rhophaloides* Walk.)

Subfamily CHALCIDINÆ.

CHALCIS Fabr.

Chalcis tarsalis sp. n.

♂.—Length 2.1 mm. Black, except the tarsi, which are honey-yellow. Head and thorax rugoso-punctate; abdomen highly polished, impunctate, the first body segment the longest, the following about one-third the length of the first, subequal. Wings hyaline, tegulæ and nervures piceous-black, the marginal nervure twice the length of the stigmal, the postmarginal scarcely as long as the stigmal; the swollen hind femora with about seven small teeth.

Hab.—Morgantown, W. Va.

Described from a single specimen taken by Prof. A. D. Hopkins on elm.

This species resembles small specimens of *C. ovata* Say, but is quite distinct from it and all other described forms by the color of legs and tegulæ.

STOMATOCERA Kirby.

Stomatocera rubra sp. n.

♀.—Length 4 mm. Brick-red, coarsely reticulately punctate, clothed with some sparse white hairs, the pubescence on the posterior coxæ and metapleura denser; scutellum bidentate at tip. Head antero-posteriorly thin, the vertex acute; antennæ 11-jointed, inserted just over the clypeus, the flagellum twice the length of the scape, the first joint only two-thirds the length of pedicel, the second as long, or a little longer than the pedicel, the following joints shorter. Thorax high, the pronotum transverse quadrate; mesonotum with distinct parapsidal furrows; metathorax abrupt, with a trapezoidal enclosure on the metanotum, reticulated. Wings hyaline, with a dusky blotch across the wing, before

the marginal nervure, the nervures brown-black, the marginal vein long, the stigmal short, ending in a small knob. Abdomen globose, punctate, the second segment occupying less than half its whole length, the following short. The hind femora are not especially thick, with a few minute denticulations beneath at apex.

Hab.—Arizona, Texas. Types two ♀ specimens from Arizona in coll. American Entomological Society and two ♀ in U. S. National Museum from Texas.

Subfamily TORYMINÆ.

TORYMUS Dalman.

Torymus axillaris sp. n.

♀.—Length 2.5 mm.; ovipositor nearly 2 mm. Metallic green, transversely aciculated and shagreened, with some sparse punctures scattered over the surface, the middle lobe of mesonotum and the scutellum with a thimble-like punctuation, the axillæ almost smooth, with some faint striæ, greatly contrasting with the rest of the surface; posterior part of mesopleura smooth, impunctate, the sides of metanotum bearded with white hairs. Antennæ brown-black, the scape brownish yellow toward base, pedicel metallic, flagellum filiform, with a fine dense, white pubescence, the joints compact, these composing the funicle longer than wide, the first the longest. Legs, except the trochanters, tips of femora and anterior and middle tibiæ and all tarsi, which are honey-yellow or yellowish white, metallic green. Wings hyaline, the venation pale, the marginal vein long, two-thirds the length of the submarginal, the stigmal short clavate, a little shorter than the postmarginal.

Hab.—Morgantown, W. Va.

Described from a single specimen collected by Prof. A. D. Hopkins, May 11, 1891.

Torymus hircinus sp. n.

♀.—Length 2.5 mm.; ovip. 1.8 mm. Metallic green, finely, closely punctate, clothed with a distinct, white pubescence, which is quite dense on the head and pronotum; antennæ brown-black, the scape pale only at extreme base; flagellum subclavate, three times as long as the scape, the club stout, the funicular joints gradually shortening, the last being wider than long, the first the longest, about two and a half times as long as thick. Thorax with the parapsidal furrows entire, the pronotum conical, the metanotum short, smooth, transverse, the spiracles small, elliptic. Legs, except coxæ, yellow, the tarsi whitish. Wings hyaline, the tegulæ whitish, the venation light brownish yellow, the marginal vein nearly as long as the submarginal, the stigmal very short with an uncus, less than half the length of postmarginal. Abdomen about as long as the thorax, golden green, smooth, the sides of each segment fimbriate with long white hairs.

♂.—Length 2 mm. Agrees with the female, except in the usual sexual differences; the flagellum is thicker, filiform, more than four times as long as the scape, brown and covered with a fine, short pubescence, the joints being a little

longer than thick, the abdomen is clavate, two-thirds the length of thorax, well clothed with a whitish pubescence; otherwise in color, structure of wings, etc., it agrees with female.

Hab.—Morgantown, W. Va.

Described from ♂ ♀ specimens bred by Prof. A. D. Hopkins from a willow twig-gall. The white pubescence is quite characteristic of the species.

Torymus persimilis sp. n.

♀.—Length 3 mm.; ovipositor 2 mm. Metallic green, shagreened, the metanotum and basal flap of abdomen blue; scape, pedicel, tegulæ and legs, except middle and hind coxæ, brownish yellow; pronotum subquadrate, the hind margin obtusely, triangularly emarginated; metanotum smooth; hind coxæ metallic blue and green; flagellum black subclavate, about two and a half times the length of scape, the first funicular joint quadrate.

Hab.—Morgantown, W. Va.

Described from a specimen captured May 1, 1891, by Prof. A. D. Hopkins. Comes nearest to *T. sackenii* Ashm. in shape, but differs in color of antennæ, coxæ, shape of pronotum, and in having a longer ovipositor.

Subfamily Tridymin.æ.

TRIDYMUS Ratzeburg.

Tridymus robiniæcola sp. n.

♀.—Length 1.8 mm. Bluish, sometimes with the head in front and the middle lobe of mesonotum metallic green; scape, trochanters, anterior tibiæ and middle and hind tibiæ at tips and all tarsi, honey-yellow. Antennæ inserted just above the clypeus, the flagellum subclavate, brown above, yellowish beneath, pubescent, the joints, after the first, wider than long; scutellum longer than wide, convex, with a cross furrow behind the middle, the apical part metallic green; metanotum very short, smooth, æneous, with a subobsolete median carina. Wings hyaline, pubescent, the venation brownish, the marginal vein not twice as long as the stigmal, the latter ending in a rather large, rounded stigma, with a very minute uncus, the postmarginal a little shorter than the marginal. Abdomen sessile, oval, depressed above, purplish or bluish, with metallic reflections.

The ♂ is almost wholly blue, with the legs, except the coxæ and hind femora, honey-yellow; flagellum filiform, more densely pubescent, the funicular joints, except the first, being quadrate; specimens occur with the head and thorax distinctly metallic green.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins.

This species comes close to *T. salacis* Nees, of Europe, but the abdomen is much shorter and the color of the legs is different. It has

not a particle of resemblance to *T. metallicus* Ashm. described from Kansas, which is metallic-green with a decided punctuation, the present species being nearly smooth.

Subfamily PTEROMALINÆ.

Tribe *Cleonymini*.

PLATYGERRHUS Thomson.

Platygerrhus? scolyti sp. n.

♀.—Length 1.5 mm. Blue-green, scaly punctate; scape and legs, except coxæ light brown, the femora dusky, the tarsi whitish; flagellum brown. Head subquadcate, much wider than the thorax, about twice as wide as thick anteroposteriorly; scape rather long, reaching slightly beyond the ocelli; pedicel two-thirds the length of first funicular joint; flagellum subclavate, twice the length of the scape, the joints longer than thick. Thorax with the pronotum very short, visible from above only at the lateral margins or corners; mesonotum about as long as wide, with the parapsidal furrows indicated only anteriorly; scutellum convex, longer than wide; metanotum very short, smooth, impunctate. Wings hyaline, pubescent, the marginal vein very slender, only one and a quarter times as long as the stigmal, the latter long, slightly curved and ending in a stigma, the postmarginal a little longer than the stigmal. Abdomen sessile, conic-ovate, about as long as the head and thorax united, depressed above, boat-shaped beneath, æneous-black.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Scolytus rugulosus* living in apple.

Tribe *Sphegigasterini*.

PARACAROTOMUS gen. nov.

Head very large, shaped as in *Caratomus* Dalm., only the frontal horns are absent, the cheeks very broad, distinctly margined. Antennæ 13-jointed, the flagellum filiform, the pedicel very small, the ring-joints 2, the funicular joints longer than wide. Thorax not quite as wide as the head, the pronotum short, transverse, distinct, and fully as wide as the mesonotum, the parapsidal furrows entire, but delicate; scutellum convex, not quite as long as the mesonotum; metanotum declining, with a curved fold or carina on each side of the middle, converging and extending to the petiole; spiracles oblong; wings with the marginal vein fully three times as long as the stigmal, the postmarginal long. Abdomen elongate, subcompressed, with a very long petiole, the petiole twice the length of the hind coxæ; body of abdomen emarginate above at base, the first three

segments long, occupying most of the surface, the second the longest, the segments after the third very short.

Paracarotomus cephalotes sp. n.

♂.—Length 4 mm. Head and thorax dull black, confluently punctate, the lower part of face with some striæ converging toward mouth; mandibles, tegulæ and legs, except coxæ, rufous or light rufous. Wings hyaline, the costal cell broad; abdomen æneous-black, smooth, the petiole opaque, finely shagreened.

Hab.—Morgantown, W. Va.

This interesting addition to our genera of the *Sphegigastrides* was captured by Prof. A. D. Hopkins in the sweeping net and confirms an opinion which I have had for some time, *i. e.*, that Thomson's tribe Caratomides will not hold and must be conjoined to the *Sphegigastrides* this new genus forming a connecting link between them.

CYRTOGASTER Walker.

Cyrtogaster liqueatus sp. n.

♂.—Length 1.8 mm. Blue-black, punctate, with a slight æneous tinge on the thorax; metapleura and hind coxæ bright metallic green; scape, except at extreme base and pedicel, submetallic brown; flagellum brownish yellow, the joints wider than long, fluted; legs brownish yellow. Head much wider than the thorax a little more than three times as wide as thick antero-posteriorly, the broad face bluish; mandibles rufous; palpi piceous, the dilated joint brownish. Thorax with the pronotum distinct, about half the length of the mesonotum, the latter with the parapsidal furrows indicated only anteriorly; scutellum not wider than long, obconical, convex; metanotum smooth, with lateral folds and a median carina. Wings hyaline, the tegulæ piceous, the venation pale yellowish, the marginal vein about twice as long as the stigmal, the postmarginal two-thirds the length of the marginal. Abdomen small, oval, with a short, but distinct, finely punctate petiole; first segment of the body occupying half its whole surface, deeply emarginate above at base, the following segments short, subequal.

Hab.—Morgantown, W. Va. Bred by Prof. A. D. Hopkins from *Phlæosinus dentatus* living in cedar.

Tribe *Pteromalini*.

ROPTROCERUS Ratzeburg.

1841. *Pachycerus* Ratzb. Die Ichn. d. Forstins. i, p. 217.
1848. Roptrocerus Ratzb. l. c. ii, p. 209; Först. Hym. Stud. ii, 1856, p. 64; Thomson, Hym. Scand. v, 1878, p. 83.

(Type *Pachycerus xylophagorum* Ratzb.)

Roptrocerus xylophagorum Ratzb.

Pachycerus xylophagorum Ratzb. Die Ichn. d. Fortins. i, p. 218.
Roptrocerus xylophagorum Ratzb. l. c. ii, p. 209, taf. iii, f. 2.

Hab.—Europe and Morgantown, W. Va.

This European species has been recognized in our fauna from specimens reared by Prof. A. D. Hopkins from *Polygraphus rufipennis* living in spruce March 26, April 17 and June 23, 1891.

Roptrocerus eccoptogastri Ratzb.

Pachycerus eccoptogastri Ratzb. Die Ichn. d. Fortins. i, p. 218.
Roptrocerus eccoptogastri Ratzb. l. c. ii, p. 209.

Hab.—Europe and Morgantown, W. Va.

Prof. A. D. Hopkins has also bred this European species from the following Scolytids: July 20, 1891, from *Tomicus calligraphus* in white pine; July 20, 1891, from *Tomicus pini* in pine; August 22, 1891, from *Tomicus cacographus* in yellow pine; July 13, 1892, from *Tomicus cælatus* in Norway spruce; and January, 1893, from *Dendroctonus frontalis* in pine.

CECIDOSTIBA Thomson.

1878.—Hym. Scand. vol. v, p. 92.

(Type *C. rugifrons* Thoms.)

Cecidostiba dendroctoni sp. n.

♀. Length 4.3 mm. Bluish, the head and thorax above metallic green, confluently punctate; scape, pedicel and legs, except coxæ and femora, which are more or less blue, or metallic, brownish yellow; flagellum black, pubescent; sometimes the head and thorax are entirely golden-green, more rarely entirely blue. The head is wider than the thorax, about twice as wide as thick anteroposteriorly, the frons with no distinct antennal furrow; mandibles and palpi light rufous; antennæ long, the scape long and slender, extending slightly beyond the ocelli; flagellum filiform, pubescent, about two and a half times the length of the scape, all the funicular joints long, the first being the longest, about six times as long as thick, the following very gradually shortening the club not as long as the first joint of funicle. Thorax with the mesonotum longer than wide at base, the pronotum very short, but distinct; parapsidal furrows only indicated anteriorly; scutellum much longer than wide at apex; metanotum very short, transverse, with rounded spiracles, the latter with a sulcus behind. Wings hyaline; tegulæ yellowish, venation light brownish yellow, the marginal vein is slender, one and a half times as long as the stigmal, the latter terminating in a large, rounded stigma, with a slight uncus; postmarginal vein fully as long as the marginal. Abdomen sessile, acuminated and compressed, one and a half times as long as the head and thorax united, the basal flap cupreous, the rest bluish with a metallic tinge, or sometimes with the sides for two-thirds the length of abdomen golden-green.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from *Dendroctonus frontalis* living in pine, and *Polygraphus rufipennis* in spruce.

Cecidostiba polygraphi sp. n.

♀. Length 2.5 mm. Bronze-green; scape and legs, including the coxæ, brownish yellow, the femora more or less dusky or obfuscated, the coxæ never metallic or blue. Abdomen variable, æneous black or bluish with metallic tingings; otherwise, except its smaller size, and in having subclavate antennæ, with the funicular joints much shorter it agrees with *C. dendroctoni*.

The ♂ averages from 1.5 to 2 mm., and varies from an æneous-black to a golden-green, the abdomen with a white spot at base.

Hab.—Morgantown, W. Va.

Described from specimens in both sexes, reared by Prof. A. D. Hopkins from *Polygraphus rufipennis* in spruce.

STINOPLUS Thomson.

1872.—Hym. Scand. vol. v.

(Type *Pteromalus militaris* Dalm.)

Stinoplus cyaneus sp. n.

♂.—Length 2 mm. Cyaneus; scape, mandibles, except teeth and legs, except coxæ and tarsi, brownish yellow; tegulæ and tarsi whitish; flagellum brown-black, subclavate, clothed with a fine, sparse pubescence, the funicular joints about two and a half times as long as thick. Head and thorax scaly-punctate; head wider than thorax, the eyes whitish; mesonotum with distinct furrows; pronotum scarcely visible from above; scutellum with a cross-furrow behind the middle; metanotum short, smooth, with three carinæ. Wings hyaline, pubescent, the venation brownish yellow, the marginal vein one and a half times as long as the stigmal, the postmarginal a little longer than the marginal. Abdomen elongate, clavate, subpetiolated, much narrower than the thorax, but as long as head and thorax united.

Hab.—Morgantown, W. Va.

Described from a specimen collected by Prof. A. D. Hopkins.

CATOLACCUS Thomson.

1872.—Hym. Scand. vol. v. p. 152.

(Type *C. carigera* Thoms.)

Catolaccus nigroæneus sp. n.

♀.—Length 2 mm. Aeneous-black, confluently punctate, clothed with sparse, short, white hairs; sides of body and abdomen bluish; scape and mandibles rufous; coxal sutures, knees and tarsi yellowish white, the tibiæ more or less obfuscated at the middle; rest of legs black or brown-black, the coxæ bluish; flagellum brown. Head very wide, about four times as wide as thick anteroposteriorly, the space between the eyes very broad; flagellum slightly more than twice as long as the scape, subclavate, pubescent, the joints delicately fluted, the funicular joints all longer than wide; metanotum very short, smooth, but tricarinated, with the apex a little produced and projecting slightly over the insertion of abdomen. Wings hyaline, pubescent, the venation brownish yellow,

the marginal vein twice as long as the stigmal, the latter a little shorter than the postmarginal. Abdomen sessile, pointed-ovate, very slightly longer than the head and thorax united, depressed and bare above, keeled and clothed with short, sparse white hairs below.

♂.—Length 1.5 mm. Agrees with the female, except the head and thorax above, are decidedly metallic green, almost entirely devoid of the peculiar short, white hairs; the flagellum is slightly shorter, subfiliform and more hairy; the tibiæ paler, very indistinctly obfuscated at the middle; the marginal vein less than twice the length of the stigmal, while the abdomen is oblong-oval, only two-thirds the length of the thorax.

Hab.—Morgantown, W. Va.

Described from one ♂ and two ♀ specimens bred by Prof. A. D. Hopkins from a Dipterous gall on box elder. Comes nearest to *C. anthonomi* Ashm., but is quite distinct in the color of head and thorax, and in the denser white vestiture.

ARTHROLYTUS Thomson.

1872.—Hym. Scand. vol. v, p. 158.

(Type *A. punctatus* Thoms.)

Arthrolytus pimplæ sp. n.

♀.—Length 1.5–2.2 mm. Dull bronze-green, confluently punctate; scape brownish yellow; legs, except coxæ, reddish yellow; abdomen acute-ovate, somewhat longer than the head and thorax united, æneous-black. Head about three times as wide as thick antero-posteriorly, the cheeks a little wider than half the width of the eyes; flagellum subclavate, finely pubescent, the pedicel longer than the two ring-joints and the first funicular joint united, or a little longer than the 3-jointed club; all funicular joints, except the last, longer than wide, the last fully as wide as long. Thorax as in *Arthrolytus* (*Semiotellus*) *clisiocampæ* Fitch, the metanotum short, tricarinated.

♂.—Length 1.6–2 mm. Head and thorax metallic green, with purplish or bluish reflections, confluently punctate; antennæ and legs yellow, the flagellum very slightly darker than the scape, subclavate, pubescent, the funicular joints, except the first, all wider than long. Abdomen much depressed, oblong-oval, shorter than the thorax, æneous or metallic, and sometimes, but not always, with a pale spot at base.

Hab.—Morgantown, W. Va.

Described from several specimens bred by Prof. A. D. Hopkins from *Pimpla inquisitor* Say.

Subfamily EUPELMINÆ.

EUPELMUS Dalman.

Eupelmus cleri sp. n.

♀.—Length 4.5 mm.; ovipositor 1 mm. Head, scape, pedicel, pronotum, streak on mesonotum, mesopleura, except posteriorly, metapleura and hind coxæ, blue; thorax above and abdomen bronzed black; flagellum black; anterior tro-

chanters, knees, tibiæ and tarsi, middle legs, including coxæ, and hind trochanters, tips of their femora and their tibiæ and tarsi, brownish yellow, rest of legs dark brown; ovipositor, except at base, light brown. Wings hyaline, the nervures brown, the marginal and postmarginal veins very long, as long as the submarginal, the stigmal vein about one-third the length of the marginal. Abdomen sessile, acuminate, longer than the head and thorax united, shagreened, sparsely pubescent.

♂.—Length 2.5 mm. Blue-black, submetallic, the head, except the vertex and the scape, blue; frons with an antennal furrow; antennæ widely separated at base, the flagellum subclavate, black, the fifth, sixth and seventh funicular joints wider than long; mesonotum with slight indications of furrows anteriorly, not deeply or sharply defined, obsolete posteriorly; mesopleura with a longitudinal impressed line, the triangular piece before the tegulæ and the hind coxæ blue; legs blue-black, the middle tibiæ and tarsi dark brown, the hind femora somewhat compressed. Wings hyaline, the marginal vein only two and a half times the length of the stigmal. Abdomen ovate pointed, as long as the thorax.

Hab.—Morgantown, W. Va.

Described from ♂ and ♀ specimens bred April 26, 1893, by Prof. A. D. Hopkins from a Clerid larva in white pine. This species comes nearest to *E. cyaniceps* Ashm., but is larger, somewhat differently colored, and with a much longer postmarginal vein.

Eupelmus juglandis sp. n.

♀.—Length 2–2.1 mm. Head blue, the thorax æneous or blue-black; trochanters, knees, anterior tarsi, middle and posterior tibiæ and tarsi, honey yellow; the hind tibiæ usually with a dusky blotch at the middle. Wings hyaline, the venation light brown, the marginal and postmarginal veins very long, the stigmal with a slight curve, less than half the length of the marginal. Abdomen æneous-black, bluish at base, sessile, depressed, only two-thirds the length of the thorax, the ovipositor sub-exserted, or with only the tip exposed, the tip being light brown or yellowish.

Hab.—Morgantown, W. Va.

Described from several specimens bred June 17, 1893, by Prof. A. D. Hopkins from an unknown larva living in walnut.

Subfamily Elachistinæ.

ELACHISTUS Spinola.

Elachistus proximus sp. n.

♀.—Length 1.65 mm. Æneous-black; scape and legs, except anterior coxæ and base of their tibiæ, which are black, honey-yellow; flagellum brown-black, pubescent, subcompressed, the funicular joints about three times as long as wide. Head smooth, impunctate; mesothorax and scutellum feebly scaly-punctate;

metanotum smooth, with a median carina. Wings hyaline, pubescent, the venation pale or yellowish. Abdomen ovate, black, keeled beneath, with a very short, punctate petiole.

Hab.—Morgantown, W. Va.

Described from a single specimen captured April 29, 1891, by Prof. A. D. Hopkins.

MIOTROPIS Thomson.

1872.—Hym. Scand. vol. v, p. 197.

(Type *M. sulcicrista* Thoms.)

Miotropis clisiocampæ sp. n.

♀.—Length 1.5 mm. Black, polished; the scutellum and metathorax light brown or yellowish; scape, pedicel, first funicular joint and legs, including coxæ, pale yellow, rest of flagellum black; pedicel very long, as long, or a little longer than the club. Wings hyaline, pubescent, the marginal vein very long, the stigmal and postmarginal very short, equal in length. Abdomen orbicular, a little wider than the thorax, with a very short petiole, subsessile.

Hab.—Morgantown, W. Va.

Described from four ♀ specimens bred June 28, 1891, by Prof. A. D. Hopkins from *Clisiocampa americana* on apple.

CIRROSPILUS Westwood.

1832.—Lond. and Edin. Phil. Mag. vol. i, p. 128.
1851.—*Aulogymnus* Först. Verh. Pr. Rhein.

(Type *C. elegantissimus* Westw.)

Cirrospilus flavomaculatus sp. n.

♀.—Length 1.5 mm. Aeneous black; spot on vertex near eye and extending narrowly behind the eye, a large quadrate spot at base of middle lobe of mesonotum just in front of scutellum, and legs, except coxæ, lemon-yellow; flagellum clavate, brown, pubescent; frons impressed, the vertex acute. Thorax feebly scaly-punctate. Wings hyaline, pubescent. Abdomen ovate as long as the head and thorax united, briefly petiolated, the first body segment the longest, the others all short, subequal.

Hab.—Morgantown, W. Va.

Described from a single specimen collected May 2, 1891, by Prof. A. D. Hopkins.

Subfamily ENTEDONINÆ.

HOLCOPELTE Förster.

Holcopelte tarsalis sp. n.

♂ ♀.—Length 1–1.5 mm. Blue-black, the three basal joints of tarsi white; the male with the face, prosternum and mesopleura cupreous, the abdomen small,

orbicular, scarcely half the length of thorax; in female long-ovate, nearly as long as the head and thorax united, the first body segment occupying one-third of its surface, the following segments all short, subequal.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from cocoons of an *Apanteles* obtained from a *Sphinx* larva.

Holcopelte euplectri How.

Elachistus euplectri How., Fourth Rep. Ent. Com. App. p. 108.

Hab.—Alabama, Florida (Ashmead).

This species, described by Mr. Howard under the genus *Elachistus*, belongs in reality to this genus.

Holcopelte producta sp. n.

♂ ♀.—Length 2–2.6 mm. Head and thorax cupreous, scaly-punctate; pleura and beneath bluish. Abdomen æneous-black, in ♀ conically produced, as long as whole surface, the following segments short, in ♂ much shorter than thorax, truncate at tip; scape yellowish; pedicel and flagellum metallic, pubescent; legs, except coxæ, white.

Hab.—Las Cruces, N. Mex. Types in National Museum.

Described from several specimens bred by Prof. Tyler Townsend from *Bruchus amicus* Horn.

ENTEDON Dalman.

Entedon bigeloviæ sp. n.

♀.—Length 2.5–3 mm. Robust, variable in color from a bronze-green to bluish green or bluish, coarsely squamous; face below antennæ bluish; mandibles rufo-piceous; spot on knees and tarsi white. Abdomen æneous-black, brassy at base. Head transverse, wider than thorax, the occiput broadly concave, the superior margin sharp; eyes large, broadly ovate; scape and pedicel æneous; flagellum black, or brown-black, the first funicular joint the longest, the third and fourth subequal, a little shorter, but stouter than the first; club short, ovate. Wings hyaline, the venation brown, the marginal vein very long, a little longer than the submarginal, rather stout, the stigmal scarcely developed, ending in a knob. Abdomen ovate, depressed above, as long as the head and thorax united, the petiole short, the first body segment the longest.

Hab.—Las Cruces, N. Mex., Arizona, Dalles, Oregon and Wasatch, Utah. Types in National Museum and coll. Ashmead.

The specimens from Las Cruces were reared by Prof. T. Townsend from *Eurosta bigeloviæ* Ckll.; those from Oregon and Utah were collected by Mr. E. A. Schwarz.

Subfamily EULOPHINÆ.

SYMPIESIS Förster.

Sympiesis unicarinatus sp. n.

♀.—Length 2.5 mm. Head blue, smooth, impunctured; thorax and hind coxæ bronzy-green, confluently punctate; mesopectus and pleura bluish or purplish; anterior and middle coxæ smooth; scape and legs, except posterior femora above and the last tarsal joints yellow, posterior femora above and last joint of all tarsi brown. Abdomen æneous. Wings hyaline, the venation brown; marginal vein long, as long as the submarginal, the postmarginal two-thirds the length of marginal, the stigmal oblique, subclavate, with a slight uncus before the tip, about half the length of postmarginal; flagellum black, somewhat compressed, about three times as long as the scape, the first and last joints about equal, three times as long as wide, the intermediate joints only about two and a half times as long as wide, all covered with a short pubescence; metanotum smooth, divided into two areas by a central carina; metapleura punctate, the spiracles round.

Hab.—Morgantown, W. Va.

Subfamily TETRASTICHINÆ.

TETRASTICHUS Haliday.

Tetrastichus thanasimi sp. n.

♀.—Length 1.2–1.5 mm. Polished black; scape, tegulæ, trochanters, tips of femora and all tibiæ and tarsi, yellowish white; flagellum brown, the funicular joints less than twice as long as thick; club ovate, thickened; femora, except tips, brown. Abdomen sessile, ovate, wider than thorax, but no longer.

Hab.—Morgantown, W. Va.

Described from specimens bred April 15, 1891, by Prof. A. D. Hopkins from the larva of a *Thanasimus* sp. living in sumach.

Tetrastichus scolyti sp. n.

♀.—Length 2 mm. Black, subopaque, with a microscopic punctuation; scape beneath, coxæ and femora, except tips, and tibiæ, except at the middle, brownish yellow; flagellum and scape above black, or brown-black; tegulæ piceous-black, flagellum subclavate, the funicular joints more than twice longer than thick, the club stouter, ovate, 3-jointed. Abdomen sessile, conic-ovate, longer than the head and thorax united.

Hab.—Morgantown, W. Va.

Described from specimens bred April 25 and June 26, 1891, by Prof. A. D. Hopkins from *Scolytus rugulosus* living in peach and apple.

SYNTOMOSPHYRUM Förster.

1878.—Verh. d. Nat. Ver. Jahrg. xxxv, p. 61.

(Type *S. fulvipes* Först.)

Syntomosphyrum orgyiæ sp. n.

♀.—Length .9 mm. Polished black; scape and legs brown, the knees and tips of tibiæ whitish, the femora obfuscated at the middle; flagellum brown,

pubescent, the funicular joints scarcely longer than thick; mesonotum without a median impressed line. Wings hyaline, pubescent, the venation light brown. Abdomen orbicular, subsessile, much shorter than the thorax, but a little wider, with the segments nearly equal.

Hab.—Morgantown, W. Va. Bred June 10, 1891, by Prof. A. D. Hopkins from *Orgyia leucostigma* on maple.

TETRASTICHODES Ashmead.

Tetrastichodes tibialis sp. n.

♀.—Length 1–1.5 mm. Blue-black, polished; scape, trochanters, tibiæ and tarsi yellowish white; femora, except tips, brown or dusky; flagellum brown, pubescent, the funicular joints subequal, about one and a half times as long as thick, the club stouter, ovate, 3-jointed; collar distinct, mesonotum without the median impressed furrow or line. Wings hyaline, pubescent, the venation pale. Abdomen ovate, pointed at tip, not longer than the thorax.

Hab.—Morgantown, W. Va.

Described from specimens bred by Prof. A. D. Hopkins from a parasitic cocoon, *Limneria* sp. parasitic on *Acronycta*.

CATALOGUE OF THE COLEOPTERA COMMON TO NORTH AMERICA, NORTHERN ASIA AND EUROPE, WITH DISTRIBUTION AND BIBLIOGRAPHY.

BY JOHN HAMILTON, M. D.,
Allegheny, Pa.

SECOND EDITION.

Since the publication of the first edition several species have been discovered which were overlooked, others have been detected and recorded, and Mr. A. Fauvel, Caen, France, in a paper published in "Revue d'Entomologie," vol. viii, 1889, entitled: "Liste Des Coléopteres communs a l'Europe et a l'Amerique du Nord, d'Apres le Catalogue de M. J. Hamilton, avec remarques et additions," has added quite a number not yet in the American catalogue, mostly belonging to the Aleocharini and some other Staphylinide, genera which have as yet received little systematic notice in America.

In the first edition the specific names employed were those in the American list, which frequently differed from the European, and this confusion has been much added to by the recent new and elaborate European catalogue, known as edition No. IV, in which changes have been made in the synonymy of a number of the species common to the two countries.

To bring together these omitted species, make the necessary changes in specific names, give some valuable additional distribution, and to utilize the knowledge derived from various correspondence, discussions and other sources, a second edition rather than a supplement seems to be required.

In this edition the specific names, and to some extent the generic, are those used in the new European catalogue, which have been adopted for the sake of uniformity. Mr. Fauvel's synonymy, when different, is placed in brackets.

The first edition contained 487 numbers; of these 15 have been expunged, leaving 472 species. This edition contains 594 species, or 122 additional to those in the first, about one-half of which are

not in our present catalogue. Several of these species have been admitted with hesitation, as *Ostoma grossum* and *oblongum*, *Læmophlæus fractipennis*, *Cryptophagus acutangulus*, etc., because they are unknown here, and European authors merely mention them as occurring in North America, which may be anywhere from the Isthmus of Panama to the North Pole. About thirty others could have been inserted with the same indefinite locality, but there is no certainty that any of them occur north of Mexico.

The elaboration of the American distribution has required much research. The general literature of American coleopterology and a portion of the European had necessarily to be carefully gone over. The numerous local catalogues and lists published by collectors underwent examination. The more prominent of these are referred to throughout the work, a list of which has been published in the sixth volume of "Psyche," entitled: "A list of some of the catalogues and local lists of American Coleoptera." The circumpolar and Alaskan distribution is largely due to the works of Mannerheim, F. W. Maeklin and J. Sahlberg. Mannerheim's Beitrag and Nachtrage to Russo-American coleopterology, are now embraced in the catalogue of the Coleoptera of Alaska published in the present volume of the TRANSACTIONS, while Maeklin's principal works on the subject are entitled—*Bidrag till Kannedom om insekternas geografiska utbredning i Norden med hufvudsakligt ascende pa Skandinaviens och Finnlands Fauna*, Helsingfors, 1853; and *Bidrag till Kannedom om sakallade vikarierande former bland Coleoptera i Norden*, Helsingfors, 1855; and finally, valuable unpublished distribution has been obtained from several private collections, notably from Mr. F. Blanchard's Mr. W. H. Harrington's, Mr. H. Ulke's and my own.

The Asiatic distribution is derived from a variety of sources, and those desiring to pursue the subject further will find a very complete bibliography in The Catalogue of the Coleoptera of Siberia and the Russ-Asiatic provinces, by Lucas von Heyden, Berlin, 1880–81; and further information in articles by various writers published subsequently in "Deutsche Ent. Zeitschrift," etc. The European and other distribution is largely due to Mr. A. Fauvel in the list previously cited.

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Blanchard.—Mr. F. Blanchard, by letter or specimens.

B. J.—Boston Journal of Natural History.

Bowditch.—LeConte's List of Coleoptera collected by Mr. F. C. Bowditch in the Rocky Mountains, Bull. U. S. Geol. and Geog. Surv. Terr. v. iv, No. ii, 464.

Bull. B.—Bulletin of the Brooklyn Ent. Soc.

Can. Ent.—Canadian Entomologist.

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Ent. Am.—Entomologica Americana.

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N. S.—LeConte, New Species of American Coleoptera, No. 167, Smith, Miscel. Collect.

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P. Am. P.—Proceedings of the American Philosophical Society, Philadelphia.

P. W.—Proceedings of the Academy of Sciences, Washington, D. C.

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Wickham.—Mr. H. F. Wickham, by letter or miscellaneous articles.

CARABIDÆ.

1. Cychrus angusticollis Fisch., *velutinus* Menet, Bull. Ac. Petrop. 1844, ii, p. 53.—This species occurs from Unalaschka, Sitka and Wrangel to northern California. Kamtschatka. Heyden, 5.

2. Carabus Vietinghovi Adams, var. *fulgidus* Gebl. var. *Schaumi* Mor.—This beautiful species inhabits Alaska, extending east towards Hudson Bay, and south towards British Columbia (Horn). Can. Ent. viii, 127; Pr. 1873, 322, Asia (Turkestan, the Amur country and on the Lena). Heyden, 6; Mots., 102; Heyden, 1886.

3. C. Mæander Fisch., *Lapilayi* Lap. *Tatumi* Motsch. *palustris* Fisch.—Michigan, the Lake Superior region, Canada, the Hudson Bay region, Manitoba. "Extends from North America through Kamtschatka to Siberia

(LeConte)." Pr. 1873, 322; LeConte Cat.; Heyden, 8; Motsch., 95; Col. Am., 99. Nikolajevsk, Heyden, 1885. Dr. LeConte united *Tatumi* to *Mæander* after an examination of examples in European collections (l. c. 322), but Dr. L. V. Heyden considers it, as well as *incompletus* Fisch. and *hudsonicus* Mots., true species, giving the following résumé in Deutsch. Ent. Zeit. xxiii, 1879, Heft i, 166:

1. C. Mænander Fisch. 1820 (*æneus, nitidus*).—Siberia, Hudson Bay; var. *mæander* Dej. 1826, 1829 (*cupro-æneus, obscurior*). Siberia (Nertschinsk), Hudson Bay; var. *Lapilayi* Lap. 1835, Nova Scotia; var. *Simoni* Heyden [1879]. (*viridi-prasinus*), Hudson Bay.
2. C. incompletus Fisch. 1828, *palustris* Dej. 1829, *Erenbergi* Fisch. 1829.—Kamtschatka.

4. C. truncaticollis Esch.? *Chaudoiri* Sahlb. ? *tristis* Mots.—Occurs in Alaska on the Yukon, and has been taken in the higher parts of the Sierra Nevada, California. Eight examples were taken by the Vega Expedition on the Asiatic side of Behring Strait, representing seven varieties; it extends over Arctic Siberia from Kamtschatka to Obsdorsk on the Gulf of Obi, and to the northern Ural Mountains. Island of St. Paul, Alaska. Fletcher's and my collection. ? Europe. Vega Exp., 12; Heyden, 6; T. ix, 31; Ulke's collection.
5. C. granulatus Dej.—Several examples were taken near the Bay of Fundy: Harrington, Can. Ent. xxiv, 112. The identification is correct. It is distributed throughout western Siberia to Turkestan, with several local varieties.—Northern and Central Europe to Caucasia, in ten varieties.
6. Hummeli Fisch. var. *Buruaschevi* Dej., var. *obversus* Mots., var. *Middendorfi* Mén., var. *smaragdulus* ‡ Kraatz, not Mann., var. *ochoticus* Mann., var. *tristiculus* Kraatz (*Gaschkevitschi* ‡ Mor., not Mann.).—The varieties seem to be founded on color variation or small differences in elytral sculpture; *obversus*, from Nertschinsk, is said by Mots. (Ins. Sib. 103) to be an elongated form having a certain resemblance to *Vietinghovi*. From the Ural to Kamtschatka (Obdorsk, Nertschinsk, Iakutsk, island of Schantar, Port Ayan (Am.), Dauria, the Amur, the Syfun, island of Askold, etc.). The variety *ochoticus* occurs in Alaska, whence there are examples from Schaum, in Mr. Ulke's collection. Heyden, 10; Heyden, 1884.
7. C. nemoralis Mull., *hortensis* Panz. non Linn.—This beautiful species, as well as *granulatus*, has probably become Americanized. An American example was seen by Dr. Horn in the collection of Mr. A. Murray, London, and many were taken recently near St. Johns, New Brunswick. T. v. 126, Ent. News iii, 60, Can. Ent. xxiv, 112.—Northern and central Europe, in several varieties.
8. Elaphrus riparius Linn., *intermedius* Kirb., *californicus* Mann., *punctatissimus* Lec., *sinuatus, similis* Lec., var. *gratiosus* Mann.—A species somewhat variable and widely distributed, extending from New Mexico through the Rocky Mountains to California and Alaska, and eastward to Michigan, Canada, Vermont and Hudson Bay. It is general in Europe, and in Asia from the Crimea, Turkestan, Dauria and Amur country northward through Siberia. Mots., 72; Col. Am., 88; Solsky, 233; Heyden, 4; Chaud., 217.
9. E. lapponicus Gyll., Ins. Suec. ii, 8.—In Kirby's collection in the British Museum an example of this species was seen by Dr. LeConte labeled,

"Arctic America," otherwise it is unknown here. Ann. and Mag. Nat. Hist. London, November, 1870. It occurs in Lapland; var. *elongatus* Fisch. is found in Kamtschatka.

10. Diachila arctica Gyll.—Hudson Bay, Europe (Lapland), Asia (Arctic Siberia). Heyden, 5.

11. Blethisa multipunctata Linn.—Northern Wisconsin, Escanaba, Mich. "Northern United States," Bull. B. i, 29; Central and northern Europe; Arctic and western Siberia. Mots., 93; Heyden, 5.

12. Loricera cærulescens Linn., *pilicornis* Fab., *semipunctata* Esch., *neoscotica* Lec.—Kenai, California eastward to Lake Superior, Canada, Michigan, Magdalen Islands, Nova Scotia; central and northern Europe, western and eastern Siberia. L. S. 208; An. Lyc. iv, 162; Mots., 141; var. *rufilabris* Mots., Kamtschatka, the Amur countries; Col. Am., 96; Heyden, 21.

13. Notiophilus sibiricus Mots., *confusus*, *punctatus* Lec.—Tennessee northward to Hudson Bay, westward to New Mexico and through the Rocky Mountains to the Pacific. Arctic Siberia, the Transbaical and Mongolia. Mots., 85; Heyden, 4.

14. N. aquaticus Linn.—Behring Strait, Alaska; all northern Asia, northern and central Europe. Veg. Exp. 47; var. *dauricus* Mots., 1859, 222, occurs at Iakoutsk.

The type of *N. aquaticus* ‡ Kirby, examined by Dr. LeConte in the British Museum is *semistriatus* Say, and not *sibiricus*, as supposed by Mr. A. Fauvel. Pr., 1853, 322.

15. Leistus piceus Froh.—"A specimen of this common European insect was found at Fitchburgh, Mass." T. v, 169. No other record of its occurrence has been observed.

16. Nebria carbonaria Esch., var. *lyrodera* Mots.—Sitka; St. Paul's Island; Kamtschatka. T. iii, 104; Heyden, 13; Col. Am. 98; Bull. Geog. Surv. iv, pt. 2, 479.

17. N. bifaria Mann., *carbonaria* ‡ Mann.—St. Michaels, Alaska; St. Paul's Island, Kamtschatka. T. iii, 103; Heyden, 13; Mann., 1852 and 1853.

18. N. nivalis Payk.—Said to occur in Greenland, T. iii, 104. Arctic Europe; common in Siberia. Heyden, 14; Bull. U. S. Geog. Surv. vol. iv, No. 2, p. 479.

19. N. frigida R. Sahlb. 1844.—Four examples were taken on the American side of Behring Strait by the Vega Expedition. Previous occurrence, northern and central Europe, eastern Siberia (Mt. Morikan, Ajansk on the east coast); Vega Exped., 47. Heyden, 14. Not in European catalogues.

20. Dyschirius æneus Dej., *frigidus* Mann., *integer*, *dentiger* Lec.—This synonymy is cited by Mr. Fauvel from his Faune Gall. Rhen. iii, 145, 1868. It appears to have been either unobserved, or disregarded by Dr. LeConte. *Integer* and *dentiger* are species in Dr. LeConte's first synopsis of the genus (Pr. 1857, 75 pp.), but in his second (Bull. Brook. 1879, ii, 17 and 31), *integer*, is retained as a species, while *dentiger* is united with *pumilus* Dej., as are also *falciger* and *rufiventris* Lec. These determinations he permitted to stand in Mr. S. Henshaw's index to the species described by Dr. LeConte (T. ix, 207, 1881). In view of the foregoing, further observation seems requisite. *Aeneus* occurs in Europe, Siberia, Dauria, Japan. Heyden, 16; Fauv. Rev. 96; *frigidus*, in Kenai,

Alaska, Mann., 1853; *integer*, California (Rio Colorado); *rufiventris*, Louisiana; *dentiger*, New York, Pennsylvania, New Jersey coast; *falciger*, Florida.

21. Clivina fossor Linn., *collaris* ‡ Lec., *elongata* ‖ Rand., *Randalli* Lec.—This species occurred on the sea-coast near Boston, Mass., and was probably introduced. Cincinnati, Ohio, Dury. Inhabits Europe and Siberia to Kamtschatka. Heyden, 15.

22. Nomius pygmæus Dej., *graecus* Lap.—"Occurs under stones, etc., in moist places in various parts of southern Europe, where it seems rare, and in many places in our country from Georgia to California." T. ix, 130; An. Lyc., iv, 208. Ottawa, Canada, Lake Superior, Alabama, North Carolina, Colorado, Washington.

23. Bembidium littorale Oliv. (1791), *paludosum* Panz., *lacustre* Lec.—Oregon, Idaho, Wickham; Lake Superior to Hudson Bay, Lec. Cat.; New York, Reinecke; Ohio, Dury; Missouri, Sum. Cat.; Europe, western Siberia. Heyden, 52.

24.—B. breve Mann., 1852.—Sitkha, Kamtschatka. Heyden, 51.

Obs.—B. impressum, formerly on our catalognes, is *B. carinula* Chand., and not the European species.

25. B. ustulatum Linn., *littorale* ‡ Oliv., 1792, *rupestre* Fab., *tetracolum* Say, var. *ruficola* Kirby.—Widely distributed, occurring mostly in restricted localities. I have it from Canada, Colorado, and take it here. New York, Reinecke; Hudson Bay region, Kirby; Vermont, Hay. and Sav.; Lake Superior region, Europe, western Siberia. Mot., 244; Heyden, 50.

26. B. Grapei Gyll., *Sahlbergi* Dej., *brunnipes* Sahlb., *æreum* Duval, *picipes* ‡ Mann., *nitens* Lec.—New Hampshire to Alaska (New York, Lake Superior, Fort Simpson on the McKenzie River); northern Europe. L. S. 211; An. Lyc. iv, 465; Pr. 1860, 316; Seliwaninskoj, an island in the Jenisei, lat. 65° 55.′ Nord., 21; Heyden, 222.

Obs.—The above is Mr. Fauvel's synonymy. Cat. No. iv gives two species—B. Sahlbergi, *brunnipes;* and B. Grapei, *æreum.* B. Sahlbergi, in Arctic Siberia, occurs in Turkestan. Heyden, 49.

27. B. lampros Hbst., *rufipes* Payk., *celere* Fab., *pygmæum* Payk., Gebl.—This common European and Asiatic species is also native in North America, occurring at Cambridge, Mass., Michigan and Ottawa, Canada, Ent. News ii, 100. Several varieties occur in Europe, western, eastern and Arctic Siberia; var. *velox* Er. occurs in eastern and western Siberia, mostly in the mountainous parts. Mots. 258, also at Tobolsk, and at Chantaika in Arctic Siberia. Heyden, 49; var. 14-*striatum* Thoms. occurs at Chabarofka. Heyden, 1885.

28. B. dentellum Thumb. (Sk. C. i, 200), *flammulatum* Clair, *ustulatum* Duft., *undulatum* Sturm, *arcuatum* Lec. (Ent. News ii). Cat. No. iv.—Occurs here abundantly in swampy places among grass and rubbish. Massachusetts, Michigan, West Virginia, Colorado, Peninsula of Kenai (Mann., 1853). Northern and temperate Europe; var. *sibiricum* Dej., many places in western Siberia. Heyden, 51.

29. B. assimile Gyll., *frontale* Lec.—Taken here abundantly with the preceding. From Florida to New Mexico, and northward to Lake Superior; Europe, western Siberia. An. Lyc. iv, 462; Can. Ent. xx, 61; Mots., 263; Heyden, 48.

30. B. quadrimaculatum Linn., *oppositum* Say.—All the United States and Canada; Europe, Algeria, all Siberia. Mots. 250.

31. Tachysnanus Gyll., *inornatus* Say, *picipes* Kirby, *rivularis* Mots.—Abundant under the bark of dead trees. The United States to Canada and Alaska; Europe, Algeria, the Orient, Siberia. Mots., 238; Col. Am., 91; Mann., 1853.

32. Patrobus septentrionis Dej., *hyperboreus* Dej., *tenuis* Lec., *longiventris* Mann., *rufipes* Lec.—To this synonymy Dr. Horn adds, as probable, *fossifrons* Esch. from Unalaschka, Ochotsch and Kamtschatka; *foveocollis* Esch. from Unalaschka, Wrangel and ? Barnaul (Gebler); *obtusiusculus* Chaud. from Hudson Bay, and *stygicus* Chaud. from New Foundland. Heyden, 25, adds *lacustris* Mots., var. *rubripennis* Thoms. and var. *australis* Sahlb. from Siberia, retaining as a species *fossifrons* Esch., *cinctus* Mots. There is likewise some European synonymy: Boreal America from Alaska to Labrador southward to the mountains of New Hampshire and to northern Michigan; all Siberia to Kamtschatka, northern and the mountains of central Europe.

33. Trechus rubens Fab.—Nova Scotia, Ottawa (Canada), Harrington. Siberia, northern and central Europe.

34. Pterostichus punctatissimus Rand., *cancellatus* Mots., *Schrenki* Moraw.—Maine, Vermont, Massachusetts, New Hampshire, Lake Superior, Canada, Hudson Bay, LeConte Cat. Arctic Siberia, the Amur, Dauria. Heyden, 36; Bull. B. v. 39; LeConte Cat.

35. P. vitreus Dej., *Maeklini* Lec., *oblongopunctatus* Geb. (*nec* F.), *orinomum* Leach, not Kirby.—Alaska, California, Boreal Europe, western and eastern Siberia to Kamtschatka. Mots., 155; Heyden, 35; Bull. B. v. 40.

36. P. mandibularis Kirby, *brevicornis* Kirby, *ochoticus* Sahl., *fastidiosus* Kirby.—Alaska to Hudson Bay, and southward to Lake Superior, Vermont and Massachusetts; Arctic Siberia (Ochotsk, the islands at the mouth of the Jenisei and some of its tributaries). Col. Am., 93; Heyden, 35; LeConte Cat.; Pr. 1873, 315.

37. P. empetricola Dej., var. *frigidus* Dej.—Sitka; Kenai; Hudson Bay Territory; var. *frigidus* occurs on the American side of Behring Strait, Kamtschatka and the islands at the mouth of the Jenisei. Pr. 1873, 315; Heyden, 35; Vega Exp. p. 48.

38. P. arcticola Chaud., *arcticus* Sahlb., *infimus* Maek., non Chaud.—An example was taken on the American side of Behring Strait, and several at various places on the Asiatic side. Previous occurrence—all northern Siberia and Arctic Europe to Russian Lapland; Vega Exp. 21 and 48. Heyden, 35.

39. P. confusus Mots., Coleop. Amur, p. 93 (1860).—? [Alaska, *Menetries*].—Abundant in the Kurile Islands, Asia, Col. Am. 93. This species first appears on our lists in a synopsis of the genus by Dr. LeConte, Pr. 1873, 310; and in the subsequent remarks, p. 315, is the statement, "*P. confusus*, 2 spec. Menetries." Motschulsky described the species from examples from Menetries. If American, the species is as above.

40. P. quadricollis Mann., ? *similis* Mann.—A single example was taken on the Asiatic side of Behring Strait. Previous occurrence—Island of St. George, Alaska; Vega Exp. 17; Mann., 1852 and 1853.

41. P. subexaratus Mann., *ventricosus* ‡ Mann.—Common in Unalaschka, Fort Michael. The Kurile Islands; Mann. 1843 and 1853.

42. Amara Eschscholtzii Chaud.—Alaska, Colorado, high peaks of the Rocky Mountains (Ulke) to New Mexico; Kamtschatka. Heyden, 40, P. vii, 348.

43. A. melanogastrica Dej.—Alaska; Kamtschatka. Heyden, 40; P. vii, 348.

44. A. hyperborea Dej., *Eschscholtzii* ‡ Mann., *longicollis* Mots., *obtusa* Lec.—Island of St. Paul, Peninsula of Kenai, Point Barrow, Fort Simpson (McKenzie River), high regions of the Rocky Mountains, Stupart's Bay (Hudson Strait), Labrador, Vermont; Arctic Siberia, Kamtschatka to Dauria. Col. Am., 95; Heyden, 40; P. vii, 348; T. v, 127; Horn Cat.; How. and Sav.; Rep. Internat. Polar Exp. Point Barrow, Alaska, p. 133.

45. A. glacialis Mann., 1853.—Penins. of Kenai on mainland; Kamtschatka, Mar. Glac. Asiat. Heyden, 39.

46. A. apricaria Payk.—"Canada, *fide* Putz., and may be the same as *Putzeysii* Horn," Horn *in litt.*—Massachusetts, Blanchard. Europe, Caucasia; common in western Siberia, Arctic and eastern Siberia, Turkestan, Crimea. Mots., 179; Heyden, 40.

47. A. littoralis Mann.—Sitkha, Wrangel, Canada northward to 58° 30′; Hudson Bay region, Horn Cat. Kamtschatka, P. vii, 351; Heyden, 37.

48. A. erratica Duft., Sturm., Schaum., *punctulata* Dej., *lævipennis*, *vulgaris* ‡ Kirby, *inepta* Lec. Alaska (islands Atka, Kadiak, Peninsula of Kenai), Queen Charlotte Island, British Columbia to Hudson Bay region and south to Vermont, Lake Superior, and down the Rocky Mountains to New Mexico). P. vii, 351 and 353; Pr. 1873, 324; Saostrov in Arctic Siberia, Mongolia, Turkestan. Heyden, 38.

49. A. interstitialis Dej., *patruelis* Dej., *inæqualis* Kirby, *splendida* Hald.—Peninsula of Kenai, British Columbia to California, through the Rocky Mountains to New Mexico; eastward to Hudson Bay and Nova Scotia, and southward through the Alleghanies to West Virginia. Arctic Europe, Kamtschatka, Arctic Siberia, Lake Kidsi. P. vii, 353; LeConte Cat.; Heyden, 38; *bipartita*, Mots., Irkutsk; *borealis* Mots., Turkestan; Col. Am., 96.

Obs.—A. fulvipes Serv., of Europe, and *A. fulvipes* ‖ Putz, of N. America, are not the same.

50. A. remotestriata Dej., *remota* Zimm., var. *indistincta*, var. *relucens* Mann., var. *terrestris* Lec., var. *apachensis* Casey.—Veta Pass, Colo., at 9400 feet, Schwarz; Arizona, Casey; Unalaschka, common in Kadiak and Kenai, Mann. 1843 and 1853; var. *terrestris* is distributed from Arizona and New Mexico northward through the Rocky Mountains, Texas, Indian Territory, Kansas, Nebraska, Iowa, Canada. A variety was brought from Kamtschatka by Dr. Kyber; Mann. 1843, No. 69. *Remotestriata* is also cited by Maeklin as from eastern Siberia in his list of species common to Skandanavia, Finland and Siberia.

51. A. brunnea Gyll., var. *lapponica* Sahlb., *Sahlbergi* Zett., *amplicollis* Mann.—Alaska, Glenora, B. C., Washington, Colorado. Northern and central Europe. Siberia (Irkutsk, on the Lena, Pupkowskii on the Jenisei, lat. 64° 49′); Mann., 1853; Heyden 39, and Nord. 21.

52. Licinus granulatus Dej., *silphoides* Fab., Cat. iv (*L. punctatus* Fab., *silphoides* Fab., Fauv. Rev. 98).—This European species has been taken alive in Massachusetts, but whether it breeds in this country is uncertain. Pr. 1873, 324; T. viii, p. xix.

53. Badister bipustulatus Fab.—Two specimens occurred on Vancouver Island, B. C. As this species reaches high latitudes in Europe and Asia, possibly it may have passed over to Alaska and southward, like many others. T. viii, 165; Mots., 141; Heyden, 24; Chaud., 228.

Obs.—Badister peltatus Panz. was a wrongly determined example of *B. flavipes* Lec. from North America, according to Dr. LeConte, who saw Dejean's type; Pr. 1873, 324. The species is not known here.

54. Pristonychus (*Læmosthenes*) complanatus Dej.—Seemingly naturalized in California, but occurring on both sides of the continent. France, southern Europe, Mediteranean basin, Azores, Madeira, Canaries, St. Helena, Peru, Chili, Strait of Magellan.

55. P. terricola Hbst., *inæqualis* Panz., Cat. iv.—Nova Scotia, Cab. Horn; probably imported. Europe.

56. Platynus bicolor Dej., *riparius* Gebl., *marginellus* Lec., *castaneipennis* Mots., *fallax* Moraw.—Mount Washington, N. H. (Austin); Alaska. Fort Simpson on the McKenzie (LeConte), California. Kamtschatka, the Amur to west Siberia, the Obi. Pr. 1860, 315; Col. Am., 97; Mots., 134; Heyden, 30.

57. P. obscurus Herbst., *oblongus* Fab., *tæniatus* Payk, *pallidulus* Chaud., *pusillus* Lec.—Vermont, Massachusetts, New York, Canada, Michigan, Illinois, Missouri, Kansas, Oregon. Central and northern Europe. Spirina in Arctic Siberia, eastern and western Siberia. T. ix, 142; Can. Ent. xx, 61; Mots., 133; Heyden, 28. Pennsylvania.

58. P. impressus Panz., var. *splendidulus* Mots.—The variety occurs at Sitka and Kamtschatka according to Motschulsky, Mots. 138. *P. perforatus* Lec., described from Methy, Hudson Bay Terr. on comparison, may prove to be this species; LeConte (Bull. B. ii, 52). *P. impressus* inhabits arctic, western and eastern Siberia to Kamtschatka; also alpine Europe. Heyden, 28; Heyden, 1886.

Obs.—P. Mulleri Hbst., *planipennis* Mots.—A recent study by Dr. Horn shows that *planipennis* is probably a variety of *fossiger* Dej. T. xix, 43. *Mulleri* is therefore erased.

59. P. Bogemanni Gyll., *obsoletus* Say, *borealis* Mots., *strigicollis* Mann., *placidus* ‡ Lec.—Dr. LeConte hesitated to unite *obsoletus* with *Bogemanni*, having only one specimen of the latter for comparison. I have compared six individuals from Sweden with about fifty of *obsoletus* with the result of discovering no permanent character by which they may be separated. *Obsoletus* is distributed generally throughout the United States, Canada and British Columbia to Alaska. Northern Europe, eastern Siberia. Salair, western Siberia. Bull. B. ii, 52; Heyden, 30.

60. P. quadripunctatus DeG., *octocolus* Mann., *stigmosus* Lec.—Abundant in New York, Canada, Michigan, Wisconsin, Lake Superior region, Alaska and the Rocky Mountains to New Mexico. Central and northern Europe, eastern and western Siberia. P. vii, 58; Bull. B. 57; Mots., 140; Heyden, 30; Chaud., 226. *P. octocolus*, according to Heyden, is not a

synonym of *4-punctatus*, but is placed in the subgenus *Batenus* Mots. Mr. A. Fauvel thinks this an error, Fauv. Rev., 99. It occurs from Dauria to Kamtschatka. Heyden, 28.

61. Perigona nigriceps Dej., *Trechicus umbripennis* Lec., *fimicola*, *Jansonia* Woll., *atriceps* Fairm., *Japonica* Bates, *Beccarii* Putz., *discalis* Chaud.—Enterprise, Fla., Schwarz; District of Columbia, Ulke; South Carolina, Georgia, LeConte. Cape Verd, Madeira, Provence, Illyria, Abyssinia, Madagascar, Annam, Japan, Borneo, New Caledonia, Ceylon (a variety). Tr. Am. x, 386; T. v, 126 and 248; T. xix, 44; Fauv. Rev., 99.

62. Blechrus glabratus Duft., *? minutulus* Goeze, *nigrinus* Mann., *linearis* Lec.—If, on further comparison, *glabratus* and *nigrinus* prove to be the same, the above will be the synonymy. *Minutulus* is much older. According to Horn (T. xiii, p. ix) *nigrinus* is "very probably *B. glabratus* Dufts." Canada, New York, Michigan, Wisconsin, Missouri, the Rocky Mountains, California, Vancouver. T. x, 134. *B. glabratus* inhabits central and northern Europe. Not rare in the Kirg. Steppes and in Siberia. Mots., 60; Heyden, 17.

63. Plochionus pallens Fab., *Bonfilsii* Dej., *Boisduvali* Gory, *valens* Lec.—This species is not of common occurrence in the interior, but being "diffused by commerce over the entire globe, it is found near all cities of our seaboard visited by foreign vessels." Horn, T. x, 146.

64. Miscodera arctica Payk., *erythropus* Mots. (Mots., 76; described and figured) *americana* Mann., *Hardyi* Chaud.—From Alaska to New Foundland. Northern Michigan, Schwarz. Horn writes of the various names (T. ix, 168): "It is all one species varying in size and brilliancy of surface in the different localities." Europe (the mountains of Britain, the Alps, Boreal Europe). Eastern Siberia, the Amur. Heyden, 21; Col. Am., 91.

65. Stenolophus ochropezus Say, *limbatus* Mann., *convexicollis* Lec., *gracilis* Casey.—From Arizona to the Atlantic, and northward to Canada. I have specimens from New Mexico and Colorado. In many places it is abundant. *Limbatus* occurs in Kamtschatka. Bull. B. vi, 15; Heyden, 47.

66. Tachycellus cognatus Gyll., *Deutschii* Sahlb., *ruficrus* Kirby, *axillaris*, *longinsculus*, *conflagratus* Mann., *nitens* Lec., Cat. iv. Mr. Fauvel gives *Deutschii* precedence.—Occurs in North America in widely separated localities. San Diego, Calif., LeConte; Mt. Washington, N. H., Austin; Nova Scotia, Harrington, *in litt.* Northern Michigan and Lake Superior; Idaho, Wickham. Sitkha to Kadiak. Arctic Siberia, Arctic Europe, Britain, Germany. Pr. 1868, 380; Heyden, 42.

HALIPLIDÆ.

67. Haliplus ruficollis DeG., *impressus* ‡ Kirby, *immaculicollis* Harris.—From the Southern and Middle States northward through Canada to Hudson Bay and westward to New Mexico and the Rocky Mountains. General in Europe, Turkestan and western Siberia. T. iv, 385; Kirby, 66; Heyden, 53.

DYTISCIDÆ.

Obs.—Hydrovatus cuspidiatus Kunze.—Dr. Sharp says that the species known by this name in our literature is *pustulatus* Mels., and not the true *cuspidatus*. Sharp, 323.

68. Hygrotus inæqualis Fab., *punctatus* Say.—This species is a little variable in color ornamentation. It occurs here abundantly and generally throughout the Middle and Western States (Buffalo, N. Y.; Ottawa, Canada; Lake Superior, Michigan, Ohio, Illinois, Kansas, Colorado). Northern and central Europe. Sharp, 395; Turkestan, Heyden, 53; Algeria, Wehnke (Sh.). T. iv, 387; var. *punctatus* is the form most commonly met with.

69. H. impressopunctatus Schall., *similis*, *picatus* Kirby, *nigrolineatus* ‡ Kirby, 10-*lineatus* Mann., *porosus* Gebl.—Apparently less abundant than the preceding. Pennsylvania, Massachusetts, New York, Canada, Michigan, Illinois, Lake Superior, Hudson Bay region, Sitka. Europe. Asia Minor, northern and southern Siberia. T. iv, 389; Col. Am., 100; Sh., 403; Heyden, 54.

70. Deronectes depressus Fab., *rotundatus* Lec., Cat. iv. Mr. Fauvel gives *brevis* Sturm. precedence.—Canada, Harrington; New York, Reinecke; Michigan, Schwarz. Europe to 68° 20′, in Lapland. T. iv, 392; Sh., 428.

71. D. griseostriatus DeG., ? (*catascopium*, *interruptus*, *parallelus* Say, 4-*striatus* Esch., *prosternalis*, *suffusus* Sharp).—Thus constituted the species extends from Labrador to Alaska (Labrador Packard; Hudson Bay region, Kirby; Alaska, California, Kansas, Lake Superior, LeConte; Michigan, Schwarz; New York, Reinecke; Vermont, Pennsylvania. My specimens are from Colorado and Massachusetts. Alpine and northern Europe to 69° in Finland. Arctic Siberia (Dudinka). T. iv, 393; T. x, 277; Sh., 435; Heyden, 54.

72. Hydroporus alpinus Payk., var. 12-*lineatus* Lec., ?*lævis* Kirby.—Lake Superior. Canada; *lævis*, Hudson Bay region. Lapland and Norway to 68°. Arctic Siberia. T. iv, 391; Sh., 448; Heyden, 54.—The examples before me can, by description, be referred partly to *alpinus* and partly to 12-*lineatus*. *Lævis* was taken presumably in the Hudson Bay region, and seemingly has not been duplicated, though possibly the form taken by Dr. Bell in lat. 54° 53′, long. 95° 44′, determined by Dr. LeConte (Lec. Cat.) to be *alpinus*, may have been this variety. Mr. Fauvel seems to think *alpinus* and 12-*lineatus* distinct species. In uniting *borealis* Gyll. with *alpinus* in the former edition (which Mr. Fauvel says was an error), I merely gave the statement of Dr. Sharp (448).

73. H. septentrionalis Gyll., *scitulus* Lec.—Lake Superior (LeConte, Schwarz), Idaho, Wickham. The mountains and northern parts of Europe. Eastern Siberia, the Amur, Dauria. P. vii, 295; Sh., 449; Heyden, 54.

74. H. Sanmarkii Sahlb., var. *rivalis* Gyll. (*obesus*, *congruus* Lec.) var. *alienus* Sharp.—This species is described from California and from Colorado (Florissant at 8000 feet). Arctic Europe to 68° 50′. Central Europe. Arctic Siberia (Dudinka and Chantaika Rivers, affluents of the Jenisei, 69° 30′ to 72°). Sharp, 449; Heyden, 54. *Rivalis* is the American form, *Sanmarkii* the Siberian, while in Europe both are connected by individuals. Fauvel, 102.

75. H. longicornis Sharp, Mon. 456, *parallelus* Sharp.—Stupart's Bay, Hudson Strait, Horn Cat. Finland, Scotland, Wales, Savoy.—Differs but little, according to Dr. Sharp, from *H. melanarius* Sturm., a species of northern Europe extending to latitude 67° 20′, and occurring in Arctic Siberia. Heyden, 55.

76. H. obscurus Sturm.—This species is, so far, unknown here, but Sharp saw two specimens in Mr. Andrew Murray's collection said to be from North America. Northern and central Europe. Arctic Siberia (Chantaika River and Tschornaja Island). Sharp, 459; Heyden, 55.

77. H. fuscipennis Schaum., *puberulus* || Mann., not Lec.—Lake Superior, Alaska. Northern Europe (Sweden, Finland, Germany). Chantaika River, Arctic Siberia. Sharp, 461; Heyden, 55.

78. H. glabriusculus Aubé.—Sharp refers a specimen from Massachusetts to this species as a variety, otherwise it is probably unknown here. "Lapland, Angora, eastern Siberia." Sharp, 470.

79. H. tartaricus Lec., *nigellus* Mann., *geniculatus* Thoms.—Described from Lake Superior, but not known to have occurred there since. My specimens are from Montrose County, Colorado, at 10,000 feet altitude (Bowditch). Hudson Bay (LeConte Cat.); Peninsula of Kenai, Queen Charlotte Island; northern Europe; Arctic Siberia (the Jenisei from 69° 30′ to 72°). Sharp, 470; Heyden, 55; Mann., 1853.

80. H. melanocephalus Gyll., *morio* Gemm., *atriceps* Crotch, *pyrenæus* Wehnke. —The synonymy of this species has given trouble, and whether *atriceps* should not have the precedence on account of the uncertainty to what insects the previous names apply may be a question.—White Mountains, New Hampshire (Sharp). Finland to 69°. Scotland; Arctic Siberia (Obi, Jenisei). Sharp, 471; Heyden, 55.

81. H. tristris Payk., *varians* Lec., *ruficapillus* Mann., *subtonsus* Lec.—From Massachusetts to Alaska (Vermont, Canada, Michigan, Lake Superior, Hudson Bay (LeConte Cat.). Queen Carlotte Island. Northern Europe to 69° in Finland. Arctic Siberia (the island of Tschornaja); Kirg. Steppes. P. vii, 297; T. iv, 395; T. x, 278; Sharp, 472; Heyden, 55.

82. H. oblongus Steph., *conoideus* Lec.—This species is not commonly found. Canada, Lake Superior (LeConte), Port Huron, Mich. (Schwarz), Vancouver, Alaska, northern Europe to 66° 20′ in Finland. Arctic Siberia in the Kurej River. T. iv, 396; Sharp, 485; Heyden, 54.

83. H. palustris Linn., var. *vittula* Er.; many other varieties occur in Europe. —*Vittula* occurs in British Columbia Sharp. All Europe, western, eastern and Arctic Siberia. *H. humeralis* Aubé, from British Columbia and Alaska, is probably another variety. Sharp, 474; Heyden, 55.

84. Ilybius ater DeG., *ungularis* Lec.—This species is probably rare here, as I know of no one who has taken it. Middle States (Pennsylvania), LeConte. Europe (the mountainous parts and north to 63° 40′ in Finland). West Siberia. T. iv, 411; T. x, 289; Pr. 1862, 521; Sharp, 550; Heyden, 57.

85. I. subæneus Er.—Queen Charlotte Island; Hudson Bay (Canada), *fide* Sharp. Europe (Germany; France, Finland to 69°). Arctic Siberia (northern tributaries of the Jenisei). Sharp, 522; Heyden, 57.

86. I. angustior Gyll., *picipes* Kirby.—Widely distributed. Labrador, Hudson Bay region 54° to 65′. Canada, northern Michigan, Lake Superior,

Kansas, Alaska. Germany. Sweden. Finland to 69°. Kamtschatka, the northern tributaries of Jenisei, southwestern part of western Siberia. Kirby, 72; T. iv, 411; T. x, 279; Sharp, 556; Heyden, 57.

87. I. fuliginosus Fab.—North America (*fide* Sharp). Central and northern Europe to 64° in Finland. Southeastern west Siberia. Sharp, 556; Heyden, 57.

88. Agabus (*Gaurodytes*) congener Payk., *ambiguus* Say, *discolor* Harris (T. x, 278), var. *lapponicus* Sahlb.—Thus constructed the range of this species is Missouri, Pennsylvania, Massachusetts, Labrador (Caribou Island, Packard), Greenland, Hudson Bay, White Mountains, N. H. Central and northern Europe. Arctic and western Siberia. Sharp, 512; Heyden, 56. "A variable species," Sharp.

89. A. nigripalpis Sahlb. (1880), *dissimilis* ‖ Sahlb., *borealis* Sharp.—Alaska, Wickham; Greenland, Labrador, Stupart's Bay and Cape Digges, Hudson's Strait (Horn Cat.), Lake Superior. Europe, Jenisseisk, Dudinka, various places at the mouth of the Jenisei. Heyden, 56. Doubtfully distinct from *congener*. Sharp, p. 513.

90. A. confinis Gyll., *bicolor*, *phæopterus* Kirby, *ovoideus* Crotch (T. x, 278).—Kansas, Lake Superior (LeConte), Michigan (Schwarz), Canada (Pettit), Vermont, Hudson Bay (Kirby), Alaska. Sweden; Finland to 68°. West Siberia. T. iv, 418; Sharp, 520; Heyden, 56.

91. A. arcticus Payk., *reticulatus* Kirby, var. *sibiricus* Sahlb.—Taken at 65° north latitude (Kirby), Labrador (LeConte), northern Europe to 69° in Finland. Arctic Siberia (the Dudinka). T. v, 422; Sharp, 526; Heyden, 56.

92. A. nigroæneus Er., *Erichsoni* Harold, *lutosus* Cr. (T. x, 279).—California, Kansas, Slave Lake, Lake Superior, Canada, Hudson Bay, central and northern Europe. Siberia (the islands and affluents of the Jenisei). T. v, 419; Sharp, 529; Heyden, 56.

93. A. tristis Aubé, var. *dubius* Mann., ?*atratus* Mann.—Occurs in New Mexico (Snow); Colorado (Schwarz); Lake Tahoe, California; Alaska; Canada (Quebec), Arctic Siberia (the Dudinka). T. iv, 422; Sharp, 531; Heyden. "This species varies a good deal in color," Sharp.

94. Rhantus notatus Fab., *suturalis* Lec., *sericans* Sharp (T. x, 279). This species has been found in Kansas (Snow, LeConte), Montana (LeConte), British Columbia. Europe; western Siberia. Pr. 1866, 366; Sharp, 619; Heyden, 57; Nord., 22.

95. R. bistriatus Berg., *agilis* Payk., *suturellus* Harr.—Massachusetts, Illinois, Kansas, Lake Superior, Slave Lake, Hudson Bay. Central and northern Europe; eastern and western Siberia. T. iv, 409; Sharp, 620; Heyden, 57 (*suturellus* Harris). *Adspersus* Fab., is not a synonym of *bistriatus* Berg., Sharp.

The synonymy of this and the preceding species gives the Europeans trouble; *suturalis* is given precedence in the former, and *suturellus* in the latter by Mr. Fauvel, Rev. 103. Some other American and Eastern forms if not identical seem very close, viz., *sinuatus* Lec. and *Grapii* Gyll. scarcely differ, except that the latter is a little larger (Sharp, 617).

96. Colymbetes Paykulli Er.—No reference to this species has been observed in our literature. Dr. Sharp (625) gives as its habitat "western North America," north Germany, Sweden, Finland to 68° 30′, Arctic Siberia

(Fadjanowsk). "Excessively near *seminiger* Lec., *inæqualis* Horn;" Horn *in litt.* Saskatchewan River, B. C. Susanville, Cal.

C. obscuratus Mann. is possibly identical, the chief difference being that the transverse striolæ of the elytra are somewhat finer and denser (comparison by Mannerheim, 1853), quite a secondary character.

97. Colymbetes dolobratus Payk., Cat. iv.—Occurs in the island of Kadiak and the Peninsula of Kenai, Mann. 1853; Hudson Bay, Lapland, islands at the mouth of the Jenisei and its Arctic tributaries, Kamtschatka. Heyden, 58.

98. C. groenlandicus Aubé, *Thomsoni* Sharp, Cat. iv.—Dr. Regimbart (Ann. Soc. Ent. France, 1889, 12, xviii) uniting this and the preceding species gives the following distribution:

C. dolobratus Payk., Hudson Bay, Lapland, Finland, Sweden, Norway. Var. *groenlandicus* Aubé, Labrador, Greenland, Iceland. Var. *Drewseni* LeConte, Greenland. Var. *Thomsoni* Sharp, Iceland, Lapland.

99. Eretes (*Eunectes*), sticticus Linn., *griseus* Fab.—More extensively distributed than any known Dytiscide. Sharp gives its distribution as follows: "France, Corsica, Sardinia, Spain, Africa, Siberia, Japan, Formosa, China, Philippines, Timor, Sumatra, Java, Pulo Penang, Siam, India, Arabia, Mesopotamia, Canary Islands, Madeira, Cape Verd Islands, U. S. N. A., Mexico, Peru, Guadaloupe, Galapagos. Australia may, perhaps, be added. It is not known at many places in the U. S. A., but occurs in Kansas (Snow), Texas, New Mexico, and at Vallecitas, Cal. T. iv, 386; Sharp, 699; Tureomania. Heyden, 58.

100. Hydaticus stagnalis Fab., *cinctipennis* Aubé, *modestus* Sharp, *americanus* Sharp (T. x, 280).—As thus constructed this species varies in color ornamentation. It occurs in New York, Michigan, Illinois. My specimens (*modestus*) are from Wisconsin; Red River, Sharp. Northern Europe; western Siberia. T. iv, 404; Sharp, 650-52. Heyden, 50.

101. H. lævipenis Thom.—Red River [Manitoba]. Sweden, Finland to 60° 30′. Dr. Sharp, l. c. doubts the distinctness of this and *H. stagnalis*, while Mr. A. Fauvel affirms their validity as species. Rev. Ent. viii, 104.

102. Dytiscus marginalis Linn.—Canada and northern Michigan. Dr. Sharp has a specimen labeled by Castelnau "Am. Bor. int. mont. rocheuses," and found another in Murray's collection said to be from North America. Widely distributed in Europe to 68°. W. and E. Siberia. Japan. Sharp, 641; Heyden, 58.

103. D. circumcinctus Ahr., *circumscriptus* Lac.—Dr. Sharp had specimens from Red River, [Manitoba]. Europe to 61° 51′ north, in Finland. Northern Siberia. Sharp, 642; Heyden, 58. *D. anxius* Mann. is possibly synonymous. It occurs in Oregon and Sitka. T. iv, 408; also in Canada and Hudson Bay region. Horn, *in litt.*

104. D. dauricus Gebl., *confluens* Say, *Franklinii* Kirby, *Ooligbukii* Kirby, *dif finis* Lec.—From Maine to Alaska (Maine, Hudson Bay (LeConte Cat.), Great Bear Lake River, Lake Superior, Michigan, Wisconsin, Kansas, Colorado (Pagosa), Unalaschka, Kadjak, Kenai, Kamtschatka; Dauria. T. iv, 407; P. 1868, 370-72; Sharp, 643; Heyden, 58.

105. D. lapponicus Gyll., var. *borealis* Mots.—This species was taken by Dr. Bell in the Oba and Kaibaraca Rivers near lat. 49°, long. 84°; Lec. Cat. Lapland, northern Europe, southward to northern Italy. Scotland,

Ireland, western Siberia; var. *borealis* occurs in the Amur region. Heyden, 58.

106. Graphoderes cinereus Linn., *fasciatocollis* Harris, *elatus*, *perplexus* Sharp (T. x, 280).—Inhabits Pennsylvania (here), New York, Massachusetts, Michigan, Missouri, northern California, Washington Territory, Red River, [Manitoba]. Europe. West Siberia. Turkestan. T. iv, 403; Can. Ent. xx, 62; Sharp, 693-94; Heyden, 59.

GYRINIDÆ.

107. Gyrinus minutus Fab.—Square Island, Labrador, Packard; Hudson Bay region, Kirby; Lake Superior, Michigan, Vermont, Washington, Oregon. Central and northern Europe. Arctic, west and east Siberia (Spirina, the Chantaika River, Omsk). Pr. 1868, 372; Heyden, 60.

Obs.—*G. Rockinghamensis* Zimm. seems to differ only by having the underside entirely pallid, but is approached in this respect so closely by individuals of *minutus* as to render the separation opinionative. It is abundant from New York to Florida.

108. Gyrinus marinus Gyll. var. *dorsalis* Gyll.—United States, without locality. Regimbart. Europe, Siberia generally; var. *dorsalis*. Europe, Irkutsk (eastern Siberia). Heyden, 60.

109. G. opacus Sahlb.—Greenland. Finland, Denmark, England, Dudinka, Tolstoinos and Saostrov, in Arctic Siberia. Heyden, 60.

HYDROPHILIDÆ.

Obs.—Helophorus granularis Linn. is to be expunged from our lists having only a catalogue record in our literature.

110. Helophorus tuberculatus Gyll., *scaber* Lec.—Very abundant at Lake Superior, LeConte. New York, Canada, Michigan, Wisconsin, Missouri, Washington, Wickham. Germany, northern Europe. Siberia (the Obi and Jenisei). Mongolia. P. vii, 358; Heyden, 61.

Obs.—Tropisternus apicipalpis Chev. is to be expunged, the record of its occurrence in Europe having been an error.

111. Hydrobius fuscipes Linn., *seriatus*, *insculptus*, *regularis* Lec. (P. vii, 372).—Very variable and widely distributed in temperate and boreal America. Alaska to Hudson Bay, southward to California; through the Rocky Mountains to New Mexico. On the Atlantic slope it extends south to Maryland and West Virginia, from which I have specimens. General in Europe. Kamtschatka, east and west Siberia, Turkestan. P. Am. P. xiii, 135; Heyden, 62.

Obs.—The Sphæridiini of North America have recently been exhaustively studied by Dr. Geo. H. Horn, and the American distribution of the species tabulated is largely from his monograph, his synonymy being likewise followed.

112. Sphæridium scarabæoides Linn.—Common about Montreal, Canada; Ent. News iv, 76. It is quite common in several varieties throughout Europe, and is found in many places in east and west Siberia, and in Turcomania. Heyden, 93; Heyden, 1885.

113. Dactylosternum abdominale Fab., *Roussetti* Woll., *insulare* Cast. (Lapl.). (*D. insulare* Lap., *abdominale* Woll. not Fab., Cat. iv).—"Florida, North Carolina. Native to Brazil, whence it has spread to the Antilles and

Mexico, and eastwardly to Madeira and Madagascar." Southern Europe.

114.—Cercyon littoralis Gyll.—Sea-coast of Maine and Massachusetts, Magdalen Islands in the Gulf of St. Lawrence, Blanchard; Coney Island, New Jersey sea-coast, at Atlantic City in abundance. Atlantic coast in Europe to lat. 66° 50′, extending also along the Mediterranean; western Siberia at Barnaul on the Obi. Heyden, 63; Can. Ent. xxiv, 37.

115. C. depressus Steph., *dorsostriatus* Thoms.—"Piney Point, Maryland: California. Europe, widely distributed on the Atlantic and Mediterranean shores."

116. C. unipunctatus Linn., *cordiger* Herbst., *dispar* Payk.—Canada, New England and Middle States westward to Illinois. I take it in western Pennsylvania abundantly, mostly under dogs in the last stage of decomposition, and with it occasionally some of the other species; hence, the significance of the generic name *Cercyon*—dog-eater, a name given to an ancient giant who had a similar habit. It is widely distributed in Europe, and in arctic and western Siberia. Heyden, 63.

117. C. quisquilius Linn., *unipunctatus* Fab. not Linn.,—Washington State to California. Europe, generally distributed, extending to Siberia and Japan. A native species, Horn.

118. C. marinus Thoms., Skand. Col. ii, p. 105.—(*C. aquaticus* Lap. Muls. *marinus* Thoms., Cat. iv). "Occurs in British Columbia, at Lake Lahache, extending eastward to Dakota. Widely distributed in Europe and northern Asia." Europe to 66° 40′; Turuschansk, on the Jenisei. Heyden, 63.

119. C. lateralis Marsh., *limbatus* Mann. 1843 and 1853.—Islands of St. Paul, Chtagaluk, Kadiak, Peninsula of Kenai and Sitkha. "Coast region of California," Horn. Central and northern Europe to lat. 65° 50′; Lake Aral, Kurejka, Vorogovo in arctic Siberia. Heyden, 63.

120. C. analis Payk., *maculatus* Mels.—Queen Charlotte Island, B. C., Prince of Wales Island (Alaska). "Upper Canada, New England States, Pennsylvania, Illinois, Iowa, Louisiana." Widely distributed in Europe to lat. 68°, Algeria, various places in west and east Siberia. Heyden, 63; T. xxi, 37.

121. C. hæmorrhoidalis Fab., *flavipes* Fab., *nigricollis* Say (*C. hæmorrhoidalis* and *C. flavipes* are made separate species in Cat. iv). "Canada and the New England States to North Carolina and westward to Illinois. It is widely distributed in Europe to lat. 63°; northern Africa and western Asia."

122. C. melanocephalus Linn., *nanus* Mels., var. *ovillus* Mots. "Canada to Pennsylvania and westward to Missouri. Widely distributed in Europe and extends to northern Africa and the north of Asia." Asiatic Ural. Heyden, 63.

123. C. pygmæus Illig., *apicalis* Say. "Widely distributed over the eastern United States from Canada to Maryland. In the eastern hemisphere it is spread throughout Europe, northern Africa and northern Asia. It seems to have a tendency to become cosmopolitan." Vorogovo in arctic Siberia, western Siberia. Heyden, 63.

124. C. nigriceps Marsh, *centrimaculatus* Sturm., *mundus* Mels. (*C. centrimaculatus* Sturm., *pygmæus* Gyll., *pulchellus* Heer, *nigriceps* Kuw.). Widely distributed from Canada to Louisiana and Indiana; Los Angeles, Cal.

In the eastern hemisphere, according to Bedel, it is nearly cosmopolitan, Horn.

125. C. lugubris Payk., Faun. Suec. i, p. 59.—Canada and the New England States to Maryland; California, Nevada, Horn. Wrangel, in Alaska, Wickham. General in temperate and northern Europe; western Siberia on the Jenisei. Heyden, 63.

126. C. tristis Illig., *minutus* Muls. (*C. minutus* Fab., Ill., *tristis* Ill., Cat. iv). Ohio, Michigan to Iowa, Dakota, California, Washington, Nevada, Europe generally; Barnaul, west Siberia. Heyden, 63.

127. C. granarius Er., *miniusculus* Mels.—Massachusetts, Pennsylvania, District of Columbia, Horn. Britain, France, Germany, Sweden.

128. Cryptopleurum minutum Fab., *atomarium* ‖ Oliv. et Auct. plur., *vagans* (*C. atomarium* Oliv., *minutum* Herbst., Bedel, Cat. iv).—"Canada and the New England States to Maryland;" abundant here in Pennsylvania, and I have it from Iowa and Illinois; Ohio, Dury. "General in Europe, extending to Siberia, the Amur region, Japan, and should be found on the Pacific coast," Horn. Western and eastern Siberia. Heyden, 63.

PLATYPSYLLIDÆ.

129. Platypsyllus castoris Rits.—The systematic position of this curious insect seems to be now finally settled. "First discovered on the American beavers in the Zool. Gardens at Amsterdam. It is now known to inhabit the beavers of Texas, Nebraska, the Hudson Bay region, Alaska and those taken in France at the mouth of the Rhone (Horn)." T. xv, 23-26; T. x, 114 and plate v.

LEPTINIDÆ.

130. Leptinus testaceus Mull., *americanus* Lec.—*caucasicus* Mots.—Occasionally inhabits with various small rodents, but more frequently in old leaves about and under logs and stones. Taken frequently and abundantly at St. Vincent Monastry, Westmoreland County, by P. Jerome Schmitt, also occurred here once; Philadelphia, Pa., District of Columbia; Ohio, Dury. Iowa; Queen Charlotte Island, Fletcher. Many places in Europe, Caucasia. Pr. 1866, 367; T. x, 113; C. 77; Can. Ent. xxiii, 183.

SILPHIDÆ.

131. Necrophorus vespilloides Hbst., *mortuorum* Fab., *pygmæus*, *hebes* Kirby, *defodiens* Mann., *pollinctor* Lec., *conservator* Walker.—From Nova Scotia to Alaska (Canada, Michigan, Lake Superior, Queen Charlotte Island; var. *pollinctor*, from Washington and Oregon, has the antennæ entirely black). Under the name *mortuorum* it inhabits east Siberia to Kamtschatka and Amurland. Europe. Pr. 1866, 367; T. viii, 231 and 314; Col. Am. 126; Heyden, 87; Heyden, 1886.

132. Silpha lapponica Hbst., *caudata* Say, *tuberculata* Germ., *californica* Mann., *granigera* Chev.—Labrador, common, Packard; Hudson Bay region, Lec. Cat.; Canada, Green Mountains, Vermont, New York, western Pennsylvania near the mountains, Michigan, Lake Superior, Nevada, Idaho, Colorado, Kansas, Texas (El Paso), New Mexico, California, (San

Diego). Oregon, Washington, Alaska; northern Europe; Arctic and boreal Siberia from Ochotsk to Nikolaevsk at the mouth of the Amur. P. vi, 278; T. viii, 238; Col. Am. 124; Heyden, 86.

133. S. trituberculata Kirby, *baicalica* Mots., *sagax* Mann.—Hudson Bay region, Lec. Cat.; Alaska, Kenai, Mann., 1853. Lake Baical and the upper Amour, Col. Amur 125 and figure; Lapland, J. Sahlberg. T. viii, 238; Heyden, 86.

134. S. opaca Linn.—This species has occurred at Lake Mono, California (Horn), Hudson Bay Territory, the borders of the McKenzie and Slave Rivers. White, in Richardson's Arctic Searching Expedition, p. 474 (Lec.); Europe; throughout Siberia; Amurland; Pekin (China). Pr. 1866, 367; T. viii, 241; Col. Am., 124; Heyden, 85.

Obs.—*S. atrata* Linn., a species found throughout Europe and in western Siberia, when introduced here, failed to establish itself.

135. Pteroloma Forstroemi Gyll.—Alaska. Arctic and western Siberia (the Obi). Caucasia, Sweden, Germany. T. viii, 245; Heyden, 85.

136. Sphærites glabratus Fab., *politus* Mann.—"Occurs from California to Alaska (Horn)." Queen Charlotte Island; boreal and alpine Europe. T. viii, 247.

137. Lyrosoma opacum Mann., 1853.—A single example was taken on Behring Island by the Vega Expedition. Previous occurrence, Alaska (the islands Atkha, St. Paul and Afognak), Kamtschatka; Vega Exp., 66.

138. Colon bidentatum Sahlb.—Massachusetts, Blanchard; New York, Ulke. Probably an introduced European species. Horn, T. viii, 217.

PSELAPHIDÆ.

139. Bryaxis [Rybaxis] sanguinea Linn., Sist. Nat. ii, 689; Faun. Suec. 853. —This is stated to occur in Massachusetts, Michigan and Illinois. T. viii, 181. Europe, Siberia, Turkestan (Samarkand). Heyden, 84.

Note.—Dr. E. Brendel states that the form seen in American collections does not agree with well authenticated European types, and he has described it under the name *valida*, Bull. Lab. Nat. Hist. Univ. Iowa, i, 173. Inasmuch as there are several varieties of this wide-spread species noted, and as it occurs in high northern latitudes as well as in the warmer parts and in northern Africa, some form of it may be looked for in North America, and it might be well to retain the name on our lists for the present.

Obs.—B. hæmatica Rehb.—This species of Europe and the Mediterranean basin was said by Mr. A. Raffray to be North American. The same statement was made by the older European authors. Mr. Raffray has since stated that the determination was erroneous, Brendel.

STAPHYLINIDÆ.

Many species listed here are not on Mr. S. Henshaw's catalogue, 1885. These have been made known by Mr. A. Fauvel in Revue Entomol. viii; this difficult family being one of his specialties, and he has added likewise much to the distribution of those previously listed. To keep in harmony the American and European lists the genera in Cat. iv have been inserted, and the species under *Thectura, Dinaræa, Calpodota, Amischa,*

Atheta, *Liogluta* and *Alconota*, are perhaps all referable to the Homalota of Mr. Henshaw's catalogue. The synonymy of Cat. iv has been used, but that of Mr. Fauvel, if different, follows in brackets.

140. Falagria longipes Woll., *fovea*, *currax*, Sharp.—Georgia, Madeira, Provence, Italy, Amur, China, Japan, Hawai Islands.

141. Homolota plana Gyll., *depressa*, *compressiuscula* Mann.—Garland and Veta Pass, Colorado, at 9500 feet, Washington, Florida, under pine bark, Schwarz. Arizona, Michigan, Europe, Algeria, northern Siberia along the Jenisei. Heyden, 66; Nord., 23; east Siberia, Solsky.

142. Dinaræa angustula Gyll.—Buffalo, N. Y.; temperate and northern Europe.

143. Amischa analis Grav.—Michigan, Schwarz; Massachusetts, Blanchard *in litt;* New York, Pennsylvania (here); Europe, arctic, west and east Siberia. Heyden, 66; Nord., 23; Amurland, Heyden, 1885. Madeira, Barbary, Caucasia, New Zealand.

144. A. cavifrons Sharp, *simillima* Sharp.—North Carolina, St. Louis (Missouri), Europe, Syria, Caucasia, eastern Siberia (Chaborofka). Heyden, 1885.

145. Colpodota sordida Marsh, *lividipennis* Mann., Brach., 70.—Pennsylvania (here), Ohio, Dury; New York, Reinecke; Canada, Harrington; Michigan and La Veta, Col., Schwarz; Lake Superior, LeConte; Kansas, Snow; Texas, Louisiana, Massachusetts; "Sitkha to Texas," Fauvel. Madeira, Azores, Europe, Mediterranean countries, Caucasia, Persia, China, Japan, Australia, Cape of Good Hope, Uruguay, Chili, Fauvel.

146. C. parva Sahlb.—New Jersey, South Carolina, Missouri (St. Louis), California (Mariposa). Europe, Barbary, Asia Minor, Syria, Caucasia, Siberia, Fauvel. *Picipes* Steph. = *parva* Sahlb., central Siberia (Spirina). Heyden, 66.

147. C. fungi Grav.—Sitkha, Stikine River, B. C., Queen Charlotte Island, Nevada, Colorado, Massachusetts. "Cape Verd, Canaries, Madeira, Europe, Mediterranean regions, Caucasia, Siberia, East Indies, New Zealand, Fauvel; everywhere in Siberia. Heyden, 66.

148. Atheta picipennis Mann., Bull. Mosc. 1843, ii, 224, *subrugosa* Kraatz.—Sitkha, Queen Charlotte Island, California, Alleghanies, White Mountains; Europe, Caucasia, northern Persia, western, eastern and arctic Siberia. Heyden, 67.

149. A. coriaria Kraatz.—"California, Nevada, Missouri, Louisiana, Georgia, South Carolina, New York. Found on nearly every part of the globe, being transported by commerce."

150. A. divisa Maerkel.—"Massachusetts; Europe."

151. A. palustris Kiesw.—"Canada, New York (Buffalo), Illinois, Missouri, Texas, South Carolina, Madeira, Europe, Siberia." Heyden, 67.

152. A. aquatica Thoms., *subænea* Sharp.—"Sitkha; temperate and northern Europe."

153. A. oraria Kraatz.—"California; southern and temperate Europe, Algeria, Syria, Asia Minor, Persia."

154. Aloconota sulcifrons Stephens, *parens* Er.—Buffalo, N. Y.; Madeira, Azores, Europe, Barbary, Syria.

155. Liogluta graminicola Grav., *granulata* Mann., *pacifica* Mots. (Mannerheim's synonymy).—Islands: Unalaschka, Kadiak, Chtagaluk and Queen Charlotte; Europe, eastern Siberia (Irkutsk). Heyden, 67.

Obs.—Tachyusa pygmæa Sachse = *Myrmecopora crassiuscula* Aubé, and is not North American, Fauvel.

156. Phloeopora latens Er., *major* Kraatz, *producta* Rey.– Pennsylvania, Missouri, Iowa (Wickham *in litt.*); temperate and southern Europe, Batoum. Pr. 1865, 420.

157. Aleochara lata Grav.—Occurs everywhere east from the Mississippi and in Canada; Europe; Siberia, Japan (Sharp), Cape of Good Hope; South America.

158. A. fuscipes Fab., *puncticeps* Thoms., Cat. iv; *lustrica* Say (*A. curtula* Goeze, *fuscipes* Grav., *lustrica* Say).—Texas; same regions as *lata*; South Am., Europe, Caucasia, Siberia.

159. A. puberula Klug., *vaga* Er., *decorata* Aubé, Cat. iv.; *dubia* Fauvel.—Georgia, Missouri (St. Louis); Madeira, Europe, etc.; cosmopolitan.

160. A. moerens Gyll., *hæmorrhoidalis* Mann., Brach., 67.—Stikine River at Glenora, B. C., in fungi, Wickham. Temperate and northern Europe; Koultouck in eastern Siberia. Heyden, 64.

161. A. morion Grav.—"Nevada; Europe, Barbary, Syria, Siberia."

162. A. nitida Grav., *biguttula* Kol., *puncillu* Rey.—"Texas, Nevada, California; Azores, Madeira, Europe, Mediterranean basin, Asia Minor, Caucasia, Siberia;" Lake Baical, Amurland. Heyden, 64 and 1885. Japan, Sharp.

163. A. verna Say, *binotata* Kraatz, Cat. iv, var. *languida* Sachse; ? var. *anthomyiæ* Sprague.—The United States and Canada generally; Europe to 61°, Cape of Good Hope. This and *nitida*, held by some to be at least varietal, Mr. A. Fauvel considers distinct species; var. *anthomyiæ* is a blackish form parasitic (truly) in the pupæ of the cabbage maggot, *Anthomyia brassica*, and in that of the onion, *Phorbia ceparum*. Sprague, Amer. Ent. ii, 370. Fletcher, Canada Experiment Farm, Rep. 1890, 164.

164. Microglossa suturalis Sahlb., *prætextata* Er., *Alcochara simplicollis* Say (*fide* Casey).—"Canada, Massachusetts, South Carolina, Missouri, California; Europe, Algeria, Caucasia, Persia."

165. Dasyglossa prospera Er.—Massachusetts, Blanchard; determined by Fauvel. Garland and Veta Pass, Col., Schwarz. France; Germany; Arctic Siberia (Kolmogorovo, Spirina); Amurland. Heyden, 1885.

166. Leptusa hæmorrhoidalis Heer, *fumida* Er., *Homolota hiemalis* Zimm. *in litt.*—"Massachusetts, South Carolina, Illinois, Texas;" Europe, Barbary, Caucasia.

Obs.—Mr. Fauvel considers the American example determined by him as *Balitochara gracilis* to be a new species [*picta* Fauv.]. Rev. Ent. 110, since described as *B. Blanchardii* Casey, Ann. N. Y. Acad. Sci. vii, 369; also briefly characterized by myself under the name *picta*, Can. Ent. xxv, 276.

167. Placusa complanata Er.—"Massachusetts (Springfield); Europe, Caucasia, Siberia."

168. P. tachyporoides Watl., *infima* Er. non Fauvel ? *despecta* Er.—Massachusetts; ?*despecta*, South Carolina; Europe. *Infima* ‡ Fauvel = *atrata* Sahlb., and is the *infima* cited from Siberia in Heyden, 67.

169. Oligota parva Kraatz, *contempta* Woll.—Massachusetts (Blanchard *fide* Fauvel), Missouri. Found about stables. Germany, Italy, Britain, Cape Verd, Madeira.

170. O. pusillima Grav., *picta* Mots., Bull. M. 1858, 236.—"Massachusetts (Cambridge); Madeira, Europe, Barbary, Syria, Caucasia."

171. O. pumilio Kiesw., *pedalis* Lec., .03 inch. long.—District of Columbia, Ulke; "Missouri (St. Louis), Texas (Bosqe Co.): France, Mediterranean Chili."

172. Gyrophœna affinis Sahlb.—Massachusetts, Blanchard; N. Jersey, South Carolina; Europe, Caucasia, east and west Siberia. Heyden, 68.

173. G. polita Grav., var. *strictula* Er., Cat. iv (*strictula*) Fauvel.—Massachusetts Springfield): temperate and southern Europe.

174. G. bihamata Thoms.—Glenora on the Stikine River, B. C., Wickham. Europe lat. 68° 40′. Jenisseisk, in western Siberia. Heyden, 68.

175. Gymnusa brevicollis Payk.—"Canada and the Lake Superior region," C. 94. Michigan, Schwarz. P. Am. P., xvii, 631; Massachusetts, Blanchard, *in litt.* Central Europe, Sweden, west Siberia. Heyden, 68.

176. G. variegata Kiesw.—Michigan, Schwarz, l. c. Central Europe, Sweden.

177. Myllæna dubia Grav.—Michigan, Schwarz, l. c., 648; Massachusetts, Blanchard; Canada, Europe, Algeria, west Siberia (Tobolsk). Heyden, 68.

178. M. minuta Grav.—St. Louis, Mo., Fauvel. Europe, arctic Siberia (Kolmogorovo). Heyden, 68.

179. M. infuscata Kraatz.—Massachusetts, Blanchard. Europe, Morocco, Caucasia.

180. Acylophorus glabricollis Lac., *pulcher* Scriba (*A. glabberrimus* Herbst., *glabricollis* Lac., *luctuosus* Solsk, *pratensis* ‡ Fauv.).—Phoenix, Ariz.; Oaxaca, Mex. Europe, Algeria, Cyprus, Carmania, Caucasia. *A. pratensis* Lec. is only American and not the preceding, a determination caused by confused types, Fauvel.

181. Quedius fulgidus Fab., *mesomelinus* Marsh, *groenlandicus* Zett., *iracundus* Say, *erythrogaster*, *melanocephalus* Mann., *sylvicola* Casey. Systematists are not in full accord as to the specific values of the above forms. Omitting *mesomelinus*, Dr. Geo. H. Horn refers them to one variable species. T. viii, 158; Ent. Amer. i, 109. Mr. A. Fauvel disposes of them thus:

Q. fulgidus Fab., *iracundus* Say.—All North America from Discovery Bay near lat. 83°, and Greenland to Louisiana; Canaries, Europe, Barbary, Asia Minor, Siberia, northern India, Java, Australia, Tasmania, New Zealand.

Q. mesomelinus Marsh, *groenlandicus* Zett.—Greenland, Canada, Maine, Massachusetts, New York, Ohio, Nevada, Oregon, California, etc.: Peru, Australia, New York, Europe.

182. Q. erythrogaster Mann., from Sitkha, California and Nevada, he regards as a valid species. *Melanocephalus* and *sylvicola* he had not seen. To preserve uniformity in the Lists two species are tabulated as in Cat. iv, but from an examination of examples of *iracundus* Say taken here in Pennsylvania, and *erythrogaster* from Queen Charlotte Island, B. C., apart from color, I can see no permanent differential characters and the differences as such seem to indicate variations rather than races.

183. Q. lævigatus Gyll., *plagiatus*, *longipennis* Mann., *rufipennis* Maek.—Likewise variable in color. "From Alaska to Oregon, Kansas, Canada and Pennsylvania," Horn. California, Nevada, Georgia. I take it here, and have it from Illinois and Michigan; Massachusetts, Blanchard; Veta

Pass, Col., at 9400 feet Schwarz. Northern Europe; east Siberia (Irkutsk). T. vii, 163; Heyden, 71.

184. Q. molochinus Grav.—Common here. "From New Hampshire to Vancouver and Sitkha, and as far south as northern Georgia," Horn. Texas. Louisiana. It was likewise taken by Mr. Schwarz at Veta Pass, Col., at 11,000 feet. General in Europe, Mediterranean countries, Caucasia, Siberia. T. vii, 164; Heyden, 71.

185. Q. fulvicollis Steph., *hyperboreus* Er.—Occurs from Maine to Vancouver and northward, but very little south of that line, Horn. T. vii, 161; Unalaschka, Mann., 1843; Glenora, B. C., Wickham. Colorado (Veta Pass at 9400 feet), Schwarz; mountainous and northern Europe; Baical region, Siberia. Heyden, 71.

186. Q. sublimbatus Maek., Mann. 1853.—Kadiak, Queen Charlotte Island, Fort Simpson (McKenzie River), Lake Superior, Blanc Sablon, Hudson Strait, Horn Cat.; Michipicoton River, Schwarz; Behring Island, Vega Exp., 63; eastern Siberia, Mann. Heyden, 71.

187. Creophilus maxillosus Linn., *balteatus* DeG., var. *ciliaris* Steph., var. *arcticus* Er., var. *fulvago* Mots., var. *orientalis* Mots., var. *villosus* Grav., var. *bicinctus* Mann., *fasciatus* Lapl.—All North America, Mexico, Guatemala, the Antilles, islands of the Atlantic. All Europe and Asia to Japan, north Africa to Abyssinia. *Villosus* is the American form, with which occurs the var. *bicinctus*, especially in the Alaskan islands (Atkha, Unalaschka, Kadiak, Kenai penins., Sitkha). *Arcticus* occurs in Kamtschatka. T. vii, 200; *fulvago* is the prevailing form in Mongolia and northern China, and occurs above Nikolaevsk on the Amur; *orientalis* occurs along the Amur to the Kurile Islands in the Pacific, Col. Am., 120 and fig; *ciliaris* is found in parts of Scotland and in the island of Mull; *maxillosus*, however, occurs in the same places with these European and Asiatic forms. Heyden, 71; Fauvel, Tidis. Nederl. Ent. Ver. 1875, xviii; S. Solsky, Hor. Ross. 1871, 316; 1872, 241.

188. Staphylinus erythropterus Linn., *casareus* ‡ Lec., *cæsareus* ‡ Schwarz (List of Coleopt. of lower Mich.)—"One specimen occurred at Detroit, Mich. P. Am. P. xvii, 599; T. vii, 190. Common in Europe, Caucasia, northern and west Siberia. Japan. Heyden, 72.

189. S. cæsareus Cederh., *ornaticonda* Lec.—Canada, Ulke, Harrington. T. vii, 191; Can. Ent xvi, 46.—Vermont, Roberts. Europe, Cyprus, Asia Minor, Caucasia, northern Persia.

190. Ocypus ater Grav.—Pennsylvania (here), Nova Scotia and Canada, Harrington. New York, New Jersey to Louisiana and westward to Kansas; Europe, Barbary, Caucasia, Ural.

PHILONTHI.—This tribe has been exhaustively studied by Dr. George H. Horn, and but little can be added to the American synonymy and distribution of the species as given in his mongraph.

191. Philonthus politus Linn. [Maek., Kirby], *æneus* Rossi, *mandibularis* Kirby, *Harrisi* Mels., *angulicollis* Mots.—(*P. æneus* Rossi, *politus*, *mandibularis* Kirby, *Harrisi* Mels.) "Nearly cosmopolitan," Horn. Abundant here in Pennsylvania; Ohio, Michigan, New York, Massachusetts, Canada to Nova Scotia, Hudson Bay and Lake Superior, Wisconsin, Kansas, Colorado, Wrangel (Alaska), Queen Charlotte Island, Louisiana, Europe; arctic, east and west Siberia; Amurland; Dauria. T. xi, 181; Heyden,

73; Col. Am., 121. "Columbia, Madeira, Azores, Algeria, Asia Minor, Caucasia, Australia, New Zealand."

192. P. umbratilis Grav.—This species "occurs in the eastern Atlantic region, Massachusetts, N. Jersey and Lake Superior," Horn. Michigan, Illinois, Missouri; Europe, west Siberia (Tobolsk). T. xi, 184; Heyden, 73. Madeira, Syria, Caucasia.

193. P. fuscipennis Mann., Brach. 28, *politus* ‡ Fab., Horn, Fauvel.—Unknown in our collections as native, but placed among the species of our fauna by Dr. Horn on the assurance of Fauvel having a specimen from North Carolina, and another from "Amer. Bor." Europe, Barnaul, west Siberia, Turcomania. T. xi, 186. Heyden, 74. "Algeria, Asia Minor, Caucasia, Persia."

Obs.—P. atratus ‡ Horn, according to Mr. Fauvel is not *atratus* Grav., who has applied to it the name *perforatus* proposed for it by Dr. Horn *in litt.*

194. P. debilis Grav.—This species is found here. "It occurs everywhere in the eastern Atlantic region, extending as far west as Kansas and Nebraska," Horn. Garland and Veta Pass, Col., at 9400 feet, Schwarz; Santa Fé Canon, N. Mex., Snow. Europe, Africa, west Siberia. T. xi, 194; Heyden, 73. Asia Minor, Caucasia, Persia, northern China, Japan.

195. P. varians Payk., var. *agilis* Grav., *niger* Mels.—(Var. *agilis* is the American form, as determined by Fauvel; nearly cosmopolitan. In the northern portions of the Atlantic region, extending westward to Washington and California) Horn. Melsheimer took it in Pennsylvania. Europe. Both forms occur in west Siberia. T. xi, 195; Heyden, 75. "Teneriffe, Mediterranean, Asia Minor, Caucasia, Japan, Abyssinia, Cafraria."

196. P. longicornis Steph., *scybalarius* Nord.—Cosmopolitan. Dr. Horn has seen specimens "from nearly every region in our fauna, except Arizona." Nova Scotia, Harrington, *in litt.* Santa Fé Canon, N. Mex., Snow. Europe; Koultoc, east Siberia. T. xi, 196; Heyden, 75.

197. P. discoideus Grav., *ruficornis* Mels.—This species, according to Dr. Horn, occurs everywhere in the Atlantic region, extending to Nevada and Arizona. All Europe and the circum-Mediterranean region, Turkestan. T. xi, 196; Heyden, 73. "Mexico, St. Helena, Cape Verd, Canaries, Madeira, Asia Minor, Bokhara, Abyssinia, Bourbon, Australia, Guatemala, Cuba."

198. P. thermarum Aubé, *pygmæus*, *angustatus* Kraatz.—Only three specimens were known to Dr. Horn to have been taken in our fauna, collected in Missouri and the District of Columbia, Massachusetts, Blanchard, *in litt.* T. xi, 196. "Missouri, Mexico, Cape Verd, Madeira, temperate and southern Europe, Ceylon, East Indies, China, Japan, Java, Zanzibar, French Guinea."

199. P. quisquiliarius Gyll.—Mr. Fauvel's distribution is "New York to Missouri and to Michigan, Massachusetts, Illinois, Iowa, Kansas; Europe, Mediterranean basin, Asia Minor, Caucasia, China, Japan, Siam, Abyssinia, Zanzibar, Angola, the Gold Coast, Ashantee, New Caledonia." Western and arctic Siberia, Turkestan. T. xi, 197; Heyden, 74.

Quadricollis Horn, which Mr. Fauvel unites with this is a distinct species, as examples seen in Dr. Horn's cabinet, sent from Europe as types of *quisquiliarius* do not correspond with those of *quadricollis*, which occurs from New York to Michigan and Missouri, Horn. The American dis-

tribution given by Mr. Fauvel includes that of both species and is probably confused.

200. P. fulvipes Fab.—"Occurs in Canada, Massachusetts, Michigan, New York" (Horn); Missouri, Florida, New Jersey; Europe, west Siberia. T. xi, 200; Heyden, 75. "Algeria, Asia Minor, Caucasia."

201. P. micans Grav.—"Occurs in the eastern United States from Massachusetts to Michigan," Horn. Pennsylvania; Canada, Harrington. New Jersey, Illinois, Missouri; Europe, Tobolsk, west Siberia, Turkestan. T. xi, 204; Heyden, 75. "Asia Minor."

202. P. cyanipennis Fab., *cæruleipennis* Mann.—Canada and the States eastward from the Mississippi; Missouri. Most of Europe, Siberia, Amur countries, Dauria, Japan. T. xi, 208; Heyden, 73; Sharp.

203. P. sordidus Grav.—Pennsylvania, "Michigan, Canada, Colorado, Vancouver, California." Madeira, Europe, Mediterranean basin, Asia Minor, Caucasia, Persia, Dauria, western Siberia, Amour countries, Australia, New Zealand, Chili. T. xi, 209; Heyden, 73; Heyden, 1885.

204. P. cephalotes Grav.—"Scarcely separable from *sordidus*, and nearly cosmopolitan," Horn. Massachusetts, Middle States, Canada, California; Central America, Mediterranean basin, Europe; arctic and western Siberia, Amurland. T. xi, 210; Heyden, 73 and 1885.

205. P. ventralis Grav., *anthrax* Grav.—New York, Michigan, Illinois, Missouri, Nevada, California; Europe, Africa, Siberia, Japan, Australia, etc. Seemingly cosmopolite. Tr. xi, 211; Heyden, 73.

206. P. nigritulus Grav., *aterrimus* Grav. var. *picipennis* Mack., *pumilus* Mann.—Sitkha, Kadjak, Vancouver to Colorado and Arizona, Lake Superior and the New England States, Pennsylvania, Florida; Turkestan, all Siberia, Japan, Europe, etc. Nearly every country on the globe.

Mr. Fauvel separates *picipennis* from *nigritulus* on the authority of a type, notably by its oviform head. Examples from Queen Charlotte Island, B. C., do not seem to differ from Pennsylvania forms, except in having piceous feet; the characters of the ♂ are identical.

207. Actobius cinerascens Grav.—This species is found here in Pennsylvania occasionally on the banks of streams; "from Michigan to Florida," Horn. Massachusetts, Blanchard. Europe generally; Caucasia. T. xi, 225.

208. Bisnius procerulus Grav., *lathrobioides* Baudi, *semipunctatus* Fairm. (*Actobius semipunctatus* Fairm. Germ.).—California, Nevada; Europe, Barbary, Australia, Chili.

209. Cafius sericeus Holme.—New York, Fauvel. Taken on the New Jersey sea-coast, on Brigantine Beach, by myself; an example was seen by Dr. Horn without locality. Madeira, the sea-coasts of Europe, the Mediterranean and the Black Sea; Australia.

210. Xantholinus fulgidus Fab. T. viii, 172.—An introduced species common in Europe, but seemingly rare here; the only native example seen was taken in this city on the street; Mr. Blanchard took it in Massachusetts in a green-house; in the vicinity of the city of New York, Horn. Europe, Mediterranean basin, Caucasia, Arabia, Ceylon, Tonkin.

211. X. punctulatus Payk. Heyden, 75.—This species was unknown as American to Dr. LeConte (T. viii, 172), and is so unknown till the present time to American collectors. Mr. Fauvel states that it is not rare with

the distribution; Massachusetts, New York (Rochester, Buffalo), Wisconsin, Illinois, Missouri. "Madeira, Azores, Europe, Mediterranean basin, Asia Minor, Caucasia, Persia, Turkestan, Siberia," etc.

212. Leptacinus batychrus Gyll., *flavipes* Lec.—Middle and Western States, rare, LeConte; Florida, rare, Schwarz; South Carolina, New York, Nevada; Massachusetts, Blanchard. Siberia (Lake Baical, the Amur); northern China, Persia, Caucasia, Mediterranean basin, Africa, Canaries, Madeira; Australia. N. S. 41; T. viii, 168; Heyden, 75, 1885.

213. L. parumpunctatus Gyll. T. viii, 169.—This species is not known to have been taken by American collectors. Missouri (St. Louis), Texas (Bosque County), Fauvel. Cape Verd, Madeira, Europe, etc. Probably cosmopolite.

214. Baptolinus longiceps Fauvel. Hopkins, Cat. Scolyt. W. Va. iii, B. 31.—Canada, New York, Fauvel. Canada (Ontario), western Pennsylvania, *mihi;* West Virginia, Hopkins; North Carolina, Blanchard. Europe Can. Ent. xxv, 276.

215. Dianous cœrulescens Gyll., *chalybeus* Lec.; N. S. p. 49.—Lake Superior region, Michigan; Canada, Harrington; Massachusetts, Blanchard. Northern and central Europe.

216. Stenus bipunctatus Er., *comma* Lec.; N. S. p. 50; Casey, Sten. p. 14.—Vancouver Island, British Columbia, Washington; Ohio, Kentucky, Dury. Middle and Western States, not rare, LeConte. Many places in western Siberia; Heyden, 88. Algeria, Caucasia, Mesopotamia, central Asia, Dauria.

217. S. juno Fab.—Vermont to Alaska (New York; South Carolina, Fauvel; Missouri, Summers; Texas, Casey; Vancouver Island; Wrangel, Alaska, Wickham. Europe, Algeria, Caucasia, arctic and all Siberia. Heyden, 77.

218. S. pumilio Er., *atomarius* Casey.—The synonymy in this and the species of *Stenus* that follow, charged to Mr. Casey, is due to Mr. A. Fauvel, to Mr. F. Blanchard (T. xiii, p. xiii), "Cambridge, Mass.; Detroit, Mich.," Casey. Europe, Germany, Austria, Poland, Finland, Siberia, Kurejka. Heyden, 78.

219. S. nanus Steph., *pusio* Casey. Heyden, 78; Casey, 82.—"Massachusetts, Canada, Lake Superior," Casey. Europe, Algeria, Caucasia, Cyprus. Arctic and eastern Siberia.

220. S. humilis Er., *mammops* Casey.—From Massachusetts to British Columbia and southward through the Rocky Mountains to New Mexico, South Carolina. Europe generally. Arctic and middle Siberia in the basin of the Jenisei; Amurland. Casey, 98; Heyden, 78 and 1885.

221. S. montivagus Heer, *brevipennis* Maek., *pterobrachys* Gem. and H.—This synonymy is verified by the Macklin types, Fauvel. Sitkha, Wrangel (Wickham). Mountains of central Europe, except the Pyrenees, Caucasia.

222. S. alpicola Fauv., *sibiricus* I. Sahlb. (synonymy by Fauvel from type).—Behring Strait, British Columbia, Colorado, New Hampshire (White Mountains, Mount Washington). Switzerland, Piedmont, the Pyrenees Lapland, arctic and eastern Siberia. Heyden, 78; Vega Exp. 52.

223. S. canaliculatus Gyll. *congener* Mack. Heyden, 78 (this synonymy is verified by a type of Macklin) Fauvel. Kadiak (Alaska), Queen Charlotte Island, Lake Superior, Canada, Massachusetts. Europe, Algeria; many places in Siberia.

224. S. parallelopipedus Mack., ? *insularis* (Sahlberg not Casey. Taken rarely under bark in Sitkha; Mann., 1852, No. 59. The type and only example of *insularis* was taken by the Vega Expedition on the Japanese island, Hiro Sami. Dr. Sahlberg thinks it doubtfully distinct from *parallelopipedus;* Vega Exp. p. 55.

225. S. morio Grav., *subgriseus, indistinctus* Casey (Steuini, 128).—British Columbia; Alameda, Garland and Veta Pass, Col., at 9200 feet, Schwarz; Michigan, South Carolina. Arctic Siberia, Amur countries. Heyden, 78 and 1885. Persia, Europe.

226. S. tarsalis Ljungh., *reconditus, propinquus* Casey (Steuini, p. 174).—By a comparison of types *tarsalis* and *reconditus* are identical, Fauvel. British Columbia, Washington, Oregon, California, Colorado (Alameda, Garland and Veta Pass, at 9400 feet), Iowa, Lake Superior, Canada (Ottawa), South Carolina. Siberia, Turkestan. Heyden, 78. Dauria, Caucasia, Barbary, Europe.

227. S. argus Grav., *ageus* Casey (Schwarz and Ulke to Blanchard).—Massachusetts; Europe; Caucasia; Siberia (at the mouth of the Jenisei). Heyden, 78.

228. Medon ochracea Grav.—Michigan, Schwarz; Massachusetts, Blanchard. Illinois, Missouri, North and South Carolina, California, etc.; cosmopolitan (Fauvel).

229. M. obsoleta Nord.—Massachusetts; Ottawa, Canada, Harrington, *in litt.* "Michigan, New York, North and South Carolina; Cape Verd, Madeira, circa-Mediterranean, Central and South America, Australia; cosmopolitan.

230. M. debilis Woll.—"South Carolina, Texas (Bosque County); St. Helena, Cape Verd, etc.; apparently cosmopolitan."

Obs.—Pæderus riparius Fab., cited as American, is thought not to be so by Dr. Horn, with which opinion Mr. Fauvel agrees.

231. Lathrobium quadratum Payk. [*nigrum* Lec.], Cat. iv.

232. L. terminatum Grav. [*punctulatum* Lec.], Cat. iv (*Lathrobium quadratum* Payk., *nigrum* Lec., var. *terminatum* Grav., *punctulatum* Lec.).—Mr. Fauvel gave this synonymy (1872) in Faun. Gal. Rhen. iii, 353, after a study of ample material from North America, Asia and Europe. Dr. LeConte, however, does not refer to it in his synopsis of the genus (1880), nor in Mr. S. Henshaw's index to his species, 1881, corrected by himself.

Nigrum occurs at Lake Superior, LeConte; Michigan, Schwarz; Canada (my examples), Massachusetts.

Punctulatum Michigan and Colorado (Alamosa), Schwarz; Ohio, Dury; western Pennsylvania, *mihi*, Kansas, Georgia and the eastern States, Fauvel. T. viii, 175; N. S. 42–43.

Quadratum Europe; many places in western Siberia and at Lake Baical· Heyden, 76.

Terminatum Europe, Caucasia, Siberia, Fauvel.

233. Hypocyptus longicornis Payk., *Ziegleri* Lec. T. vi, 86 and 124.—*Ziegleri* was described (N. S. 30) from a specimen found at York, Pa.; Massachusetts, Blanchard. Europe, Morocco, Caucasia.

234. H. læviusculus Mann., Brach. 58.—Massachusetts; Europe, Morocco, Algeria, Siberia.

235. Tachinus rufipes DeGeer, var. *pallus* Grav.—Sitkha. Fauvel. Arctic, eastern and western Siberia, Dauria, Syria, Caucasia, Europe. Heyden, 69.

236. Tachinus pallipes Grav., *frigidus* Er., *propinquus* Mann.—Virginia, Pennsylvania to Canada, Iowa, California, Sitkha to Unalaschka; central and northern Europe. T. vi, 101; Col. Am. 122.

237. T. basalis Er., *circumcinctus* Maek. T. vi, 102.—Canada, Michigan, Kansas, Vancouver Island, Sitkha; northern Russia, northern Ural, Siberia (affluents of the Jenisei and Amur). Heyden, 69.

238. T. arcticus Mots., Col. Amur, 121.—Five examples were taken on the American side of Behring Strait by the Vega Expedition and twenty-seven on the Asiatic side. It occurs over all arctic Siberia, Vega Exp. 28 and 53. *T. instabilis*, with which this was united in the first edition, as well as *apterus*, are considered each a distinct species by Mr. Fauvel on the authority of types, and so far only American.

239. T. elongatus Gyll.—Unalaschka Mann.; Saguenay River, Canada, Fauvel. Central and northern Europe, Caucasia, Bokhara, eastern Siberia (Tobolsk). Heyden, 69.

240. Tachyporus jocosus Say, *arduus* Er. T. vi, 104; Heyden, 69.—The central and northern portions of the Atlantic region, extending to Colorado and New Mexico; Europe (Finland); west Siberia.

241. T. chrysomelinus Linn., *maculicollis* Lec.; ?*acaudus* Say.—This species has the same general distribution in America as *jocosus*. Europe throughout; various places in arctic, west and east Siberia; Turkestan and Bokara. T. vi, 104; Heyden, 69. "Caucasia, Asia Minor."

242. T. nitidulus Fab., *brunneus* Fab., *faber* Say.—Probably cosmopolitan. Occurs over our entire country, including California; also common in Europe and northern Africa. T. vi, 105; Veta Pass, Col., at 9400 feet, Schwarz. Various places in the basin of the Jenisei in eastern Siberia. Heyden, 70.

243. T. macropterus Steph., *scitulus* Er.—Louisiana, Horn, *one example*. District of Columbia, Schwarz, P. W. i, 241 (Ohio Dury was a wrong determination).—Common in Europe, along the Jenisei; Amurland, Turkestan. T. vi, 105; Heyden, 70. Mr. Fauvel having seen no American examples doubts its occurrence.

244. Cilea silphoides Linn., *marginalis* Grav., *marginata* Rand.—Massachusetts, New York, Michigan, the Lake Superior region and various places in the northern States; Missouri. Europe generally. T. vi, 106. "Cape Verd, Madeira, circa-Mediterranean, Abyssinia, Persia, Japan, Antilles (St. Thomas)."

245. Conurus littoreus Linn. T. vi, 109; Heyden, 70.—Cincinnati, Ohio, Dury. Upper and lower Michigan, Schwarz; Massachusetts and Canada, Horn; Nova Scotia, Harrington, *in litt.* Europe, Caucasia, along the Jenisei in west Siberia.

246. C. bipustulatus Grav., *bisignatus* Horn. T. vi, 110.—California (Wilmington, Santa Barbara), Nevada; nearly all Europe, western Siberia, the Amur. Heyden, 70.

247. C. pubescens Payk. T. vi, 111.—Michigan and Florida, Schwarz; Massachusetts, Blanchard; New York to Louisiana, Horn. Iowa, California. Europe; west Siberia (places on the Jenisei). Heyden, 70. " Madeira, circa-Mediterranean, Caucasia, Persia, China, Abyssinia.

248. Bolitobius (*Bryocharis*) cingulatus Mann., Brach. 95; T. vi, 116.—Virginia, Pennsylvania to Canada, Oregon, British Columbia, Queen Charlotte Island, Alaska; Europe, Caucasia.

249. B. pygmæus Fab., not Horn, 3 *maculatus* ‡ Say, *venustus*, *binotatus* Mels.—Florida to Canada, Michigan, Colorado (Veta Pass at 9000 feet, Schwarz), Nevada, California, British Columbia; Europe, Algeria, Caucasia, east and west Siberia. T. vi, 117; Heyden, 70.

Obs.—Pygmæus Horn = angularis Sachse, *fide* Erichson and Kraatz, Fauvel.

250. B. exoletus Er., *trinotatus* ‡ Horn, *facilis* Casey. T. vi, 118.—District of Columbia westward to the Mississippi and northward to Canada and Lake Superior; Europe, Caucasia, Algeria.

251. Mycetoporus splendidus Grav., *americanus* ‡ Horn, *inquisitus* Casey.—Pennsylvania, Michigan, the White Mountains, N. H., Blanchard. Canada, Lake Superior; Veta Pass, Col., at 9200 feet, Schwarz; British Columbia, Crotch. Europe, Barbary, Caucasia, East Indies, east and west Siberia. T. vi, 122; Heyden, 70.

252. M. punctus Gyll., *punctatus* Fauv.—Massachusetts, Fauvel. Northern and temperate Europe, Caucasia.

253. M. punctipennis Scriba.—Illinois, Missouri, Fauvel. Tuscany, Styria, Corfu, Serbia, Caucasia.

254. M. brunneus Marsh, *lepidus* Grav. not Horn.—White Mountains, N. H., Fauvel. Europe, Algeria, Cyprus, Caucasia, Siberia.

255. Olisthærus megacephalus Zett., *laticeps* Lec.—Canada, the Lake Superior region, LeConte, Schwarz. California; Peninsula of Kenai, Mann., 1853. Sweden, Hungary, arctic and eastern Siberia. C. 101; L. S. 219 and 239; Heyden, 84.

256. O. substriatus Payk., *nitidus* Lec.—Eagle Harbor, Lake Superior, LeConte. Michipicoten and Isle Royal, L. S., Schwarz; Massachusetts, Blanchard. Sweden, Germany, France, arctic and east Siberia; *omnia*, loc. cit.

257. Pseudopsis sulcata Newm., *columbica* Fauvel.—Found abundantly in Canada, Michigan and the shores and islands of Lake Superior. From an examination of examples from Venezuela and North America, Mr. Fauvel says he cannot separate his *columbica* (Fauv. 26) from the European types of this species. Ent. Rev. x, 90.

258. Bledius opacus Block. Heyden, 80.—Iowa, New York, Fauvel. Europe, Algeria, Caucasia; var. *extensus* Mots., Dauria.

259. Oxytelus sculptus Grav., *mœrens* Mels. P. ii, 42; T. vi, 235.—From Florida to Canada, and westward to California and Vancouver Island. Europe, Siberia. Heyden, 80; nearly cosmopolitan.

260. O. rugosus Fab., *basalis* Mels., *rugulosus* ‡ Harris. T. vi, 235.—From Florida to Louisiana and northward to Nova Scotia, Canada and Michigan; arctic and central Siberia, Asia Minor, Caucasia, New Zealand.

261. O. laqueatus Marsh, *luteipennis* Er., *fuscipennis* Mann., not Lec.—Mr. Fauvel makes this synonymy from a type of *fuscipennis;* island of Chtagalnk, Sitkha, Wrangel, Queen Charlotte, British Columbia, southward to Guatemala; Europe, Caucasia, Siberia. Heyden, 80.

Fuscipennis Lec. is another species, *fide* Sharp (Biol. Cent. Am. Staphylin. 688), occurring in Kansas, Illinois, Pennsylvania.

262. O. nitidulus Grav., *punctatus* Lec., ?*nitidulus* Lec.—British Columbia, Vancouver, Colorado, Missouri, New York, Massachusetts; Madeira, Teneriffe, Azores, circa-Mediterranean, Asia Minor, Persia, Bokara, Dauria, arctic, eastern and western Siberia to Turkestan. Heyden, 80. Mr. Fauvel says it is doubtful whether Dr. LeConte's *nitidulus* is that of Gravenhorst, and that *rugulosus* Say, is a Mexican species. The former, or a species he supposes to be it, has lately been described by Mr. T. L. Casey under the name *suspectus.*

263. O. tetracarinatus Block, *depressus* Grav.—Two examples were taken by Dr. LeConte in Indiana, one of which was sent to Mr. Fauvel, who affirmed the identification; Europe, circa-Mediterranean, Asia Minor, Caucasia, Persia, Japan. T. vi, 237.

264. Trogophlœus riparius Lacord, *bilineatus* ‡ Fauv. not Er. (*bilineatus* Stevens), Fauv.—Vancouver, Nevada, Kansas, Georgia, New York, Massachusetts, Michigan, Fauvel; Washington State, District of Columbia, Ulke *in litt.* Europe, circa-Mediterranean, Persia, Turkestan, Caucasia, Australia, Chili.

265. Trogophlœus memnonius Er., *aridus* Duv., *rubripennis* Fauvel, *mancus, spectatus* Casey.—Massachusetts, Blanchard; Florida and Veta Pass, Col., Schwarz; Pennsylvania, South Carolina, Georgia, Louisiana, Missouri, Arizona, Mexico, Cuba, Cape Verd, Madeira, temperate and southern Europe, Mediterranean countries, New Caledonia.

266. T. corticinus Grav., *fulvipennis* Fauv.—Texas, Belfrage; Garland and Veta Pass at 9200 feet, Schwarz.—"Maine, Massachusetts, Michigan, Illinois, Iowa, South Carolina," Fauvel. "St. Helena, Canaries, Madeira, Azores, Europe, circa-Mediterranean, Caucasia, Mexico, Guatemala, Cuba, St. Domingo, Guadeloupe, St. Thomas, Pernambuco;" west Siberia. Heyden, 81.

267. T. fuliginosus Grav.—Massachusetts (Cambridge), Fauvel; District of Columbia, Ulke, *in litt.* Europe, Caucasia.

268. T. pusillus Grav., *subtilis* ‡ LeConte (agreed to by Dr. LeConte), Fauvel.—Western and Southern States, LeConte; Michigan, Massachusetts, Texas, Fauvel. Madeira, Canaries, Europe, Barbary, Caucasia, Siberia. Heyden, 81; T. vi, 246.

269. T. gracilis Mann., Brach. 51, *tenellus* Er.—Michigan, South Carolina, Fauvel. Europe, Barbary, Caucasia, Siberia. Heyden, 81.

270. Ochthephilus (*Ancyrophorus*) biimpressus Maek.—Sitkha; "Central Pyrenees." Mann., 1852, 319.

271. Coprophilus striatulus Fab. Tr. v, 170; Fauv. 93.—Canada, Pettit. Northern and central Europe.

272. Porrhodites fenestralis Zett., *Deliphrum brevicolle* Maek.—Kenai, Sitkha, British Columbia, mountainous Colorado, Michigan, Lake Superior, Hudson Bay region (Lec. Cat.), Lapland, Germany, Siberia (at the mouth of the Jenisei and some of its tributaries). Heyden, 82.

273. Geodromicus plagiatus Fab., *verticalis* Say, var. *nigrita* Mull.—The type occurs in Utah, Colorado, New Mexico, Lake Superior, Michigan, New York, Pennsylvania to Georgia, Kansas. The var. *nigrita* is found in Colorado (Fauvel), but not here as stated in the first edition. Mr. Fauvel unites *ovipennis* with *plagiatus* from a type of the former sent him by Dr. LeConte, but there is probably some confusion, as there is a species from New Mexico agreeing fairly well with the description of *ovipennis*. The form occurring in New York and Mt. Washington, N. H., which Mr. Fauvel regarded as *nigrita* (Notices Ent. part 7, 1878, 90) he *now* considers a new species, which he describes under the name *strictus*, thus: "Thorax very shortly cordate, very strongly abruptly constricted at base, globosely dilated anteriorly" [Tr.]. In Europe *plagiatus* has been divided into nearly a dozen named varieties; var. *nigrita* occurs in arctic Siberia. Heyden, 81; Fauvel, 90.

274. Acidota crenata Fab., *seriata* Lec.—Abundant on the shores and islands of Lake Superior (LeConte, Schwarz), Michigan, Canada; Massachusetts, Blanchard. Central and northern Europe. Siberia (at the mouth and in the valley of the Jenisei). Heyden, 82; Fauvel, 64; N. S. 55.

275. A. quadrata Zett., *patruelis* Lec., *Frankenhauseri* Maek.—Interior of Kenai, Colorado, Lake Superior (LeConte), Michigan, Mount Washington and White Mountains, N. H. Lapland, northern Asiatic Ural; N. S. 56. Heyden, 82; Fauvel, 65.

276. Arpedium gyllenhalli Zett. (1840), *brunnescens* Sahlb. (1871), alate form. —Lake Superior, White Mountains, N. H. Mouth of the Jenisei and many places in arctic Siberia. The apterous form, var. *tenue* Lec. (1863); Lake Superior, northern Michigan, British Columbia, LeConte. Lapland, arctic Siberia, N. S. 55; Fauv., 63; Heyden, 82.

277. A. quadrum Grav., var. *alpinum* Fauv. (*heydeni* Kraatz), White Mountains, N. H., Mt. Tom, Mass., Fauvel. Switzerland, Savoy, Bavaria; arctic Siberia (Kolmogorovo, Vorogovo, Spirina). Heyden, 82.

278. A. brachypterum Grav., *troglodytes* Kiesw.—White Mountains, N. H., Fauvel. Mountainous and northern Europe, Caucasia, Siberia (Spirina, Kalimsk, Tobolsk, Tschulimsk, Dudinka). Heyden, 82.

279. Larithmæum atrocephalum Gyll.—Stickine River, B. C., Wickham. California (Lake Tahoe), Fauvel. Europe, Algeria, Cyprus, Caucasia, Japan.

Obs.—Amphichroum canaliculatum ‡ Fauvel = *maculatum* Lec., and is only American, Fauvel to Dr. Horn.

280. Orochares angustata Er.—One specimen was taken by Mr. F. Blanchard near Lowell, Mass., found in winter in ice on an inundated meadow. Germany, France, Italy, Austria, Fauvel.

281. Olophrum rotundicolle Sahlb., *convexicolle* Lec.—Found at Eagle Harbor, Lake Superior, and Michipicoton Island and River (LeConte, Schwarz). Germany, Finland, Lapland. Described and figured by LeConte, L. S. 221. Fauvel, 79.

282. O. fuscum Grav., *latum* Maek., *laticolle* Sahlb.—St. George Island, Peninsula of Kenai, temperate and northern Europe, Caucasia; Siberia, Mann, 1853, 194. The type of *latum* was seen by Mr. Fauvel, who makes the synonymy.

283. Pycnoglypta lurida Gyll.—British Columbia, Crotch; Oregon, Colorado, Lake Superior, Michipicoton River, Bachewauung Bay, Schwarz; Massachusetts, LeConte; New Jersey, Schmelter; North Carolina; Cincinnati, Ohio, Dury. Europe (Germany northward to Lapland). Siberia (about the mouth of the Jenisei). Fauvel, 41; Heyden, 84.

284. Homalium cæsum Grav.—California (one example in the Eppelsheim collection), Fauvel. Europe, Algeria, Caucasia, the island of Askold.

285. Homalium strigipenne Maek., Mann. 1852 and 1853.—Sitkha, Kadjak; Oregon, San Diego and Mariposa, Cal., Thevenet. Amurland, Fauvel, 46; Heyden, 83.

286. H. lapponicum Zett., *planipenne* Maek., *argus* Lec., C. 103.—Sitkha, Kenai; California, Colorado, Michigan at Marquette, and Gargantau, Schwarz; Massachusetts, Blanchard; Lake Superior, LeConte. Ottawa, Canada, Harrington, *in litt.* Central and northern Europe, Caucasia, west Siberia on the Jenisei and Irtysch. Fauvel, 50; Heyden, 83.

287. H. pusillum Grav., *læsicolle* Maek.—Stikine, Prince of Wales Island, British Columbia, Nevada, California, Crotch; Veta Pass, Col., at 9400 feet; Trenton Falls, N. Y., Schwarz. Europe, Caucasia (Mr. T. L. Casey says that *H. pusillum* is not American, but the statement can only be accepted as opinionative in view of the decisions of competent American and European entomologists). An. N. Y. Acad. Sci. vii, 424.

288. H. foraminosum Maek., *laticolle* Kraatz, *clavicorne* Mots., *lagopinum* Sahlb., *brevicolle* Thoms.—Sitkha, Mann.; Queen Charlotte Island, Michipicoton River, Detroit, Mich.; Veta Pass, Col., at 9200 feet, Schwarz; mountainous Pennsylvania; central and northern Europe. On the Angara River and around Lake Baical, east Siberia. Fauvel, 53; Heyden, 82.

289. H. florale Payk., *rufipes* ‡ Fauvel, not Fourc.—Oregon, Michipicoton River and Detroit, Mich., Schwarz; Ottawa, Canada, Harrington, *in litt.*; Pennsylvania, Ziegler. Europe, Algeria, Caucasia, Lake Baical, east Siberia. Fauvel, 47; Heyden, 83.

290. H. rivulare Payk.; Fauv. 55.—California. Europe, Algeria, Caucasia.

Obs.—Anthobium sorbi Gyll.—The occurrence of this species in Greenland requires confirmation, Fauvel.

291. Protinus brachypterus Fab.—Queen Charlotte Island, Fletcher. Europe, eastern Siberia. Heyden, 84.

292. P. limbatus Maek.—Sitkha, British Columbia, New Hampshire; middle and southern Europe, Caucasia. *Maeklini* Fauvel united with this in the first edition is, according to Mr. Fauvel, a distinct species from Sitkha, California and Nevada.

293. P. atomarius Er., *parvulus* Lec., *basalis* ‡ Hüb. and Schwarz.—Ottawa, Canada, Harrington, *in litt.* Detroit, Mich. (Schwarz); Massachusetts, Blanchard; Lake Superior, Michipicoton River, Bachewauung Bay (LeConte, Schwarz). Europe, Sweden. Fauvel, 32. Length .05 inch. Barbary, Caucasia.

294. Megarthrus sinuaticollis Lac., *angulicollis* Maek.—Occurs in Sitkha. Mr. Schwarz took it at Grafton, W. Va.; Georgia, Veta Pass, Col., at 9200–11,000 feet altitude. Europe, northern and Central Siberia. Fauvel, 28; Heyden, 84.

295. Micropeplus tesserula Curt., *eostatus* Lec., *costipennis* Maek., *baicalicus* Mots.—Kenai, California, Lake Superior, Michigan, Canada; Europe, Algeria, Syria, Caucasia, Lake Baical, east Siberia; Lebedevo, arctic Siberia. Fauvel, 7; Heyden, 91.

TRICHOPTERYGIDÆ.

The distribution of these minute Coleoptera is translated from Rev. A. Matthews, "Monograph of the Trichopterygidæ," and his subsequent synopsis, published in T. xi, 113, *et seq.*, to which is added all that has been observed in American literature.

296. Ptenidium pusillum Gyll., *evanescens* Marsh, *terminale* Hald.—"Habitat: Europe. America. The Canary Islands and Madeira." Pennsylvania, Hald.; Fort Garland, Col., and Detroit, Mich., Schwarz; Ottawa, Canada, Harrington. Mon., 80; T. ii, 150; J. Ac. i, 109. "A common and abundant species."

297. P. atomaroides Mots.—"Habitat: The Atlantides, North America and Europe, teste Motschulsky; not rare." Mon., 81. This species for some reason has been omitted in Matthew's synopsis. Mr. Schwarz found it common in a salt marsh on the eastern coast of Florida. Cat. iv, unites this with *pusillum* with an (?).

298. Trichopteryx ambigua Matth., not in Cat. iv.—"Habitat: Rare in Europe, taken twice in England by Mr. Matthews. New York, taken frequently by Dr. Schaum." Mon., 119; T. xi, 139.

299. T. sericans Heer.—Habitat: Europe; North America (the United States and Canada), the Canaries; found usually in refuse and rejectamenta of stables. Mon., 130; T. xi, 137. The Kirghis Steppes. Heyden, 87.

300. T. fascicularis Herbst.—"Habitat: Europe and North America (United States), in ant nests and the rejectamenta of stables, but rarely, or never, in decaying vegetation." Mon., 134; T. xi, 135.

301. T. atomaria DeG.—"Habitat: Europe quite commonly." Mon., 142. The United States, T. xi, 131. Asia (Dauria). Heyden, 88.

302. Actinopteryx fucicola Allib., *dilaticollis*, *marina*, Mots.—A small thing, .017 inch. long. Ocean beach near Fortress Monroe, Va. P. W. ii, 39. Under trash on the sea-coasts of Europe, Africa, Madeira, Canaries. Math. Mon. 150.

303. Smicrus filicornis Fairm.—"Habitat: Rare in Europe; quite common in North and South America in dung, and under rubbish on the river shores." Mon., 112; T. xi, 140. Detroit, Mich., Schwarz.

PHALACRIDÆ.

304. Olibrus bicolor Gyll.—Middle States, not common, perhaps imported, P. viii, 16. New York, Reinecke; Cedar Keys, Tampa and Enterpise Fla., Schwarz; St. Louis, Mo., Summers. Barnaul, west Siberia; Angora River, east Siberia; Turkestan. Heyden, 91. Mr. T. L. Casey considers the European and American forms distinct, and has named the latter *Lecontei*. Still, owing to possible errors in alleged types, the species is retained for the present.

NOTE.—Stilbus (*olibrus*) testaceus Panz., *consimilis* Marsh, with which *apicalis* Mels., has been united is not known to be American.

COCCINELLIDÆ.

305. Anisosticta strigata Thunb., *bitriangularis* Say, *multiguttata* Rand.—Massachusetts, Canada, Michigan, Illinois, Wisconsin, Hudson Bay, Vancouver Island; France, Hungary, Lapland, Irkutsk. T. iv, 369; Crotch, 93; var. *irregularis* Weise; Oregon.

Obs.—19-*punctata* Linn., which Mr. Geo. Crotch says (Rev. Coccinel. 1874. 93) is an Asiatic and European species, is thought by Mr. Weise to be the *strigata* of American authors, and he does not cite *strigata* Thunb. as American (Best-Tab. Coccinel. 1885, 14, 15). Owing to this and other confusion, the synonymy given, it is thought best to retain for the present.

306. Adonia variegata Goeze, *mutabilis* Scriba, var. *constellata* Laich.—Nova Scotia, LeConte. Common throughout Siberia. Col. Am., 245; Heyden, 215. Europe, north Africa, Madeira, Abyssinia, central Asia, India. T. iv, 368, Crotch, 98. But one specimen has been found in our territory, and this doubtful.

307. Hippodamia parenthesis Say.—Nearly everywhere in the United States and Canada to Alaska; from Crotch's statement it is perhaps a variety of *H. amœna* Fald., the only difference being in the diminished amount of black in the design of the elytra. *H. amœna* inhabits eastern Siberia. T. iv, 368; Crotch, 97; Heyden, 215; Col. Am. 245.

308. H. 13-punctata Linn., *tibialis* Say.—Occurs here with the preceding, and is equally widely distributed, extending from Hudson Bay to Alaska, and southward to the West Indies and Mexico. Throughout Europe and central Asia. In Siberia it is found on the northern tributaries of the Amur, and along the Jenisei and Lena. T. iv, 368; Crotch, 94; Col. Am., 244; Heyden, 215.

Obs.—Megilla maculata DeG. is not European, as sometimes stated.

309. Coccinella 3-fasciata Linn., *cimicifugæ* Pallas, var. *juliana* Muls., *barda* Lec., var. *Eugenii* Muls., var. *subversa* Lec.—New York, Canada, Michigan, Lake Superior, Hudson Bay, New Mexico, Colorado, California, Oregon, Alaska. Lapland to Siberia, reaching Kamtschatka. T. iv, 370; Crotch, 115; Col Am., 245; Heyden, 217.

310. C. transversoguttata Fald., 5-*notata* Kirby, *ephippiata* Zett., var. *transversalis* || Muls., *nugatoria*, *sedakovii*, 9-*stigma* Muls., var. *californica* Mann. —Greenland, Hudson Bay, Canada; Green Mountains, Vermont; Mt. Washington, N. H.; Michigan, Lake Superior, Kansas, Colorado, Utah, New Mexico, California to Alaska; Lapland, eastern Siberia (Angara River, Ourga, Amurland); Dauria. T. iv, 370; Crotch, 116; Col. Am., 245; Heyden, 217; Can. Ent. viii, 192. Japan.

311. C. monticola Muls., *nivicola*, *Whitii* Muls. (1850), *lacustris* Lec. (1852).—Canada, Michigan, Lake Superior, Kansas, New Mexico, the mountains of Colorado, Oregon, Vancouver Island. *Nivicola*, thought by Crotch to be identical, occurs in Kamtschatka, Lake Baical, Amurland, Iakutsk on the Lena, and in arctic Siberia. T. iv, 371; Crotch, 115; Col. Am., 245; Heyden, 216. By purest strictness *Whitii* has precedence.

312. C. tricuspis Kirby, var. *Mannerheimi* Muls.—"Hudson Bay, Canada, Lake Superior, Kansas, Siberia (Crotch, 115)." Iakutsk, on the Lena, Irkutsk, Baical, Amurland. T. iv, 371; Heyden, 216.

313. C. 11-punctata Linn. var. *menetriesi* Muls. (*Aegyptiaca* Reiche).—California, Muls. Weise. Europe, north Africa, Syria, Siberia. Col. Am., 245; Heyden, 216; T. iv, 364; Crotch, l. c. 114.

314. Adalia frigida Schneid., *hyperborea* Payk., *arctica* Thunb., *opthalmica* Muls., *melanopleura*, *barda* Lec.—From Hudson Bay to Vancouver Island south to California and New Mexico through the Rocky Mountains; Kansas, Missouri, New York, Canada; Lapland, Siberia, Dauria. T. iv, 372; Crotch, 100; Heyden, 216; Nord., 30; Heyden, 1885.

315. A. bipunctata Linn., *humeralis* || Say, *bioculata* Say, var. 6-*pustulata* Linn. —Widely distributed, occurring in nearly all the States from the Atlantic to the Pacific, Vancouver Island, Canada, Nova Scotia, the greater part of Europe and Siberia. T. iv, 372; Crotch, 102; Col. Am., 245; Heyden, 216; Nord., 30.

316. Anatis ocellata Linn., 15-*punctata* Oliv., *mali* Say, *labiculata* Say, *canadensis* Prov., var. *hebræa* Linn., var. *sexlineata* Fab., var. *signaticollis* Muls. —Common in most parts of the United States and Canada; St. Domingo, Europe, the island of Waigatsch in the Arctic Ocean, Peninsula of Taimyr, arctic Siberia southward to the Amur; var. *hebræa* occurs in France and Britain, but more commonly in Siberia (Koultoc, Chabarofka). Say, ed. Lec. i, 192; ii, 232 (LeConte says *labiculata* and *mali* = the 15-*punctata* of Europe); Crotch, T. iv, 374; Crotch, p. 124; Lec. Cat.; Heyden, 217; Nord., 16; Sols. Hor. Rus. 1873, 272.

317. Halyzia 14-guttata Linn., *similis* Rand., *cardisce* Rand., *obliqua* Rand., var. *hesperica* Cr.—*Similis* occurs on Mount Washington, N. H.; *hesperica* in Arizona. New England States, Crotch; Marquette, Mich., Schwarz. Europe generally, west and east Siberia. Var. *similis* is found in Siberia, "where forms occur in which black replaces the normal red color." T. iv, 373; Nord, 30; Heyden, 217.

318. H. 12-maculata Gebl., *incarnata* Kirby, *daurica* Dej. Cat.—Alaska, Hudson Bay; Marquette, Mich.; Lake Superior, Mount Washington, N. H.; Kamtschatka, Lake Baical, Dauria. T. iv, 374; Crotch, 110; Heyden, 216; Mann., 1853.

319. Scymnus arcuatus Rossi, Mant. ii. 88, 30.—North America, Weise. Madeira, Canaries, central and southern Europe, Asia. Crotch, l. c. 245.

ENDOMYCHIDÆ.

320. Mycetæa hirta Marsh. T. iv, 362.—This species has occurred at various places; Baltimore and New York, Crotch; Detroit, Mich., Schwarz; Buffalo, N. Y., Reinecke; Allegheny, Pa., my collection; Massachusetts, Blanchard. St. Helena, Madeira, Europe.

COLYDIIDÆ.

321. Aglenus brunneus Gyll., *Anommatus obsoletus* Spence.—Missouri, Schuster; California (C. 127); near San Francisco, Cal., Casey. P. W. i, 46. Probably introduced. In Europe it occurs about houses. Madeira, Canaries, Turkestan. Heyden, 94.

322. Murmidius ovalis Beck.. *Centocerus advena* Schuppett.—Probably introduced from Europe. This minute insect, only .05 inch. long, has been observed several times in this country; it seems to live in mouldy straw. Pr. 1876. 270. My native specimens are from Washington, D. C. Lake Ponchartrain (Louisiana), Summers. Sitkha (Mann. 1843), California. Japan. In Europe it mostly occurs in cargoes of ground-nuts (arachides), and is probably African in its origin, Fauvel.

RHYSODIDÆ.

323. Rhysodes exaratus Serv., *americanus* Lap., *aratus* Newm.—From New York and Michigan southward to Georgia and westward to Missouri and Iowa, though it is not common. I have met with it here only once. France, Germany, Austria, Russia, Caucasia. T. v, 162. The above synonymy is permitted to stand on the authority of Cat. iv, though Mr. George Lewis says *exaratus* Serv. is only European, and is not American, An. and Mag. Nat. Hist. 1888, p. 76, *et seq.*

CUCUJIDÆ.

324. Silvanus surinamensis Linn., var. *bicornis* Er., 6-*dentatus*, *frumentarius*, *cursor* Fab.—Cosmopolitan. Mr. Fauvel describes a species under the name *mercator*, confounded in French collections with *surinamensis* (Rev. 132 and 163), which very probably is in like manner, mixed with it here; the appearance, form and color are the same, but it may be distinguished by: the head longer, narrower, obconic; eyes much larger, nearly reaching the posterior angles; sides of front unidentate; antennæ with the penultimate joint more transverse, the thorax narrower and the dorsal sulci parallel; elytra longer, narrower, with the margins less sinuate near the base. Cosmopolitan also.

325. S. bidentatus Fab.—Heyden, 95.—Everywhere in the United States and Canada under bark. Europe to Japan, western Siberia.

326. Cathartus gemellatus Duv., *quadricollis* ‡ Casey, *cassiæ* ‡ first ed. New York, Georgia, Florida. Cuba, Morocco, Europe. Probably cosmopolitan.

327. C. cassiæ Reiche, *gilæ* Casey.—Arizona. Cuba, Morocco, Europe. Equally cosmopolitan.

328. C. advena Waltl., *musæorum* Zieg.—Many places in North America under bark and in articles of commerce. Probably cosmopolitan.

329. Nausibius clavicornis Kugel, *dentatus* Marsh, *major* Zimm.—Generally distributed in North America; not found every place. Cosmopolitan.

330. Prostomis mandibularis Fab., *americanus* Crotch.—Taken by Mr. Crotch on Vancouver Island. "Oregon, California, Nevada," Casey. Europe. T. v, 71; T. xi, 76.

331. Pediacus fuscus Er., *planus* Lec., *subcarinatus* Mann., 1852–53.—Canada. Michigan, Lake Superior, Hudson Bay (Lec. Cat.), Nebraska, Colorado, New Mexico, Alaska. Central Europe, Italy. P. vii, 73; T. xi, 79. Amurland (Chabarofka). Heyden, 1886.

332. P. depressus Hbst., var. *subglaber* Lec.—North Carolina, LeConte; Michigan, Lake Superior, Veta Pass, Col., at 9200 feet, Schwarz. Pennsylvania, Vancouver Island, *mihi*. P. vii, 73; T. xi, 79. Central and northern Europe.

333. Læmophlæus testaceus Fab., *Zimmermanni* Lec., *bullatus* Lec.—Common here, being mostly found under the epiderm of bark, and occurring in nearly every place from the Atlantic to the Pacific, where there are deciduous trees. General in Europe. P. vii, 75. Amurland (Chabarofka). Heyden, 1886. Cosmopolitan.

334. L. alternans Er.—South Carolina (Zimm.), Louisiana, Summers. T. ii, 257. Europe.

335. L. ferrugineus Steph., *testaceus* Payk.—Probably cosmopolitan. Louisiana, Summers; it also occurred in beans from Brazil, living on the débris of a Bruchus in the Centennial Building, Philadelphia, and in mouldy straw goods from Italy, in New York. Pr. 1876, 270; T. xi, 92.

336. L. pusillus Sch., *longicornis* Mann., *puberulus* Lec.—This species likewise accompanies commerce, but there are few records of its occurrence in North America. Dr. LeConte described it from the Colorado River and Mannerheim from Sitkha. Massachusetts (Blanchard). P. vii, 75; T. xi, 94. South Carolina, Zimm.; Louisiana, Summers. T. ii, 257. Cosmopolitan.

337. L. fractipennis Mots., *Donfouri* Lab.—North America, no locality, Reitter. Southern France, Corsica.

Obs.—As most European authors have, till recently, included the Antilles and Central America in the term, North America, its mention without locality is unsatisfactory.

338. Dendrophagus cygnæi Mann. (1846), *glaber*, Lec. (1850), var. *americanus* Mann., 1853.—*Germari* Mann. is not a synonym, as stated by Mr. Casey (T. xi, 109), but is a *Donacia*. Peninsula of Kenai, Queen Charlotte Island, Vancouver to Lake Superior, Michigan, Canada, New York; Elk County, and here in Allegheny County, Pennsylvania; and through the Rocky Mountains to New Mexico. While comparison of types is necessary to completely identify this species with *crenatus* Payk. from the description of the latter it seems to be a probable variety. *Crenatus* occurs in temperate and northern Europe, Vorogovo, arctic Siberia. Nord., 26; Heyden, 222.

339. Cryptamorpha Desjardinsii Guer., *Pseudophanus signatus* Lec., *Cyrtamorpha musæ* Woll., *Hubbardii* Casey.—This species accompanies commerce (Mauritius, Madagascar, St. Helena, Madeira), but is not cosmopolitan. "Southern Europe," Cat. iv. In the United States it is described from Puget's Sound, Washington, by LeConte. P. vii, 85; and was taken abundantly at Crescent City, Fla., by Mr. Hubbard. Casey, Cont. 167; C. 135; Pr. 1859, 85.

CRYPTOPHAGIDÆ.

340. Henoticus serratus Gyll., *denticulata* Lec. L. S. 223.—From Canada to Alaska, Queen Charlotte Island. Here in Pennsylvania; Massachusetts and New Hampshire, Blanchard; Canada, Michigan, around Lake Superior, Veta Pass, Col., at 10,000 feet, Schwarz. Southern California. Europe, Amurland (Chabarofka). Heyden, 1886; Mann., 1853.

341. Cryptophagus cellaris Scop.—Imported from Europe, where it is found in houses, etc. In this country there are few records of its recognition. Buffalo, N. Y., Reinecke; Detroit, Mich., Schwarz; San Diego, Cal., LeConte. Taschkend in Turkestan. Heyden, 96. North America.

342. C. saginatus Sturm. [*subvittatus* Reitt., *saginatus* Sturm. Cat. iv].—Also imported from Europe, and identified by Zimmermann in S. Carolina, Horn. Jeniseisk on the Jenisei, lat. 58° 20′. Nord., 26.

343. C. acutangulus Gyll., *uncinatus* Steph.—North America, Reitter. Europe, Turkestan.

344. C. lapponicus Gyll., not Thoms., not Reitter, *I. Sahlb.*—One example occurred at Port Clarence on the American side of Behring Strait, and two on the opposite Asiatic coast. Vega Exp. 29 and 54. Finland, Lapland.

345. Cœnoscelis ferruginea Sahlb., *testacea* Zimm.—Peninsula of Kenai, S. Carolina, here in Pennsylvania. Chabarofka, Mann., 1853; T. ii, 258; Heyden, 1885.

346. C. cryptophaga Reitt.—North America, no locality, Reitter. Eastern Siberia.

347. Atomaria fuscicollis Mann., *plicicollis* Maek., *umbrina* Er.—Sitkha, California, Mann., 1852. Europe, Caucasia.

348. A. apicalis Er., *clavicornis* Baudi.—North America, no locality, Reitter. Europe, Caucasia, Siberia. Heyden, 1886.

349. A. Kamtschatica Mots.; Mann., 1853.—Kadjak, Queen Charlotte Island, Kamtschatka, Port Ajan. Many of the North American Cryptophagidæ are still undescribed.

MYCETOPHAGIDÆ.

350. Typhæa fumata Linn., *Cryptophagus gilvellus* Mels., *crenatus* ‖ Mels. (P. ii, 114; P. viii, 15).—Cosmopolite through commerce. Occurs wherever flour, grain, etc., are stored.

351. Hypocopris formicetorum Mots.—Taken at Garland, Col., in an ant's nest (Schwarz), and thought by the authors of the Classification to be identical with Motschulsky's species, which occurs in the Kirghis Steppes. C., 140; Heyden, 95.

DERMESTIDÆ.

352. Dermestes carnivorus Fab., *unicolor* Lapl., *mucoreus* Lec.—This species, nearly cosmopolite, probably originated in South America, whence it was imported into France in hides, Fauvel. Texas, Mexico, Cuba, Guadaloupe, New Grenada, New Caledonia, etc. P. Am. P. xx, 352.

353. D. lardarius Linn., var. *signatus* Lec., var. *vorax* Mots.—Nearly cosmopolitan, and probably native, as well as introduced by commerce. It occurs everywhere from the Atlantic to the Pacific. Eastern and western Siberia, in the basin of Lake Baical; Amurland, Dauria. Var. *vorax* has the basal fascia of the elytra bright, to yellow rufous. T. v, 50; P. vii, 109; P. Am. P. xx, 353; Col. Am., 123 and plate; Heyden, 98.

354. D. elongatus Lec.—Should comparison prove this to be the European *bicolor* Fab., as Mr. Jayne thinks probable (P. Am. P. l. c.), its introduction from Europe is quite likely. Though not commonly met with, its distribution is extensive. New York, Canada, Kansas, Texas, Georgia, Florida, whence I have a specimen. P. vii, 109.

Obs.—Mr. E. Reitter, Ent. Monatsbl. 1880, ii, 86, says that *D. pulcher* Lec. is probably the true *bicolor* Fab., and that *elongatus* Lec. is probably *peruvianus* Lap., opinions which need verification, Fauvel.

355. D. cadaverinus Fab., var. *domesticus* Germ., var. *subsulcatus* Ball.—Southern Florida and St. Augustine, Fla. Its occurrence in Alaska is probable, as it occurs in Turkestan, Dauria, Amurland, Island of Askold, Japan, west and east Siberia to Kamtschatka. Col. Am., 124; Heyden, 98; Heyden, 1884.

356. D. vulpinus Fab., *lupinus* Mann., *maculatus* DeG.—Generally distributed from Florida to Alaska; likewise in Europe, arctic, east and west Siberia, and countries to the south. P. vii, 109. Heyden, 98. Cosmopolitan, as the preceding.

357. D. Frischii Kug.—Probably introduced from Europe. It occurs abundantly on Brigantine Beach, N. J., and near Atlantic City, and has been taken by Mr. Ulke at Washington, D. C. (Ulke, *in litt.*). Massachusetts, Blanchard, *in litt.* Can. Ent. xvi, 37. Amurland and adjoining countries in the orient. Heyden, 98.

Obs.—D. murinus Linn. frequently appears in our literature, perhaps from a wrong determination of certain forms of *caninus* Germ. with brown antennæ and a minimum of fulvous mottling.

358. Attagenus piceus Oliv., *megatoma* Fab., *dichrous*, *rufipennis*, *spurcus*, Lec.—Abundant from the Atlantic to the Pacific in houses, granaries and on flowers. The larvæ destroy hair, woolen goods, leather, etc. Probably imported from Europe, nearly cosmopolitan. Asia, New Caledonia. P. vii, 109; P. Am. P. xx, 355. Lintner's 2d An. Rep. Ins. of New York, p. 46, gives its economic history.

359. A. pellio Linn., *bipunctatus* DeG.—This species, introduced from Europe, is much rarer, living mostly on desiccated animal substances; it is occasional in museums. It has occurred in Nova Scotia, Canada, Michigan, New York and various places in the Eastern States. P. vii, 109; P. Am. P. xx, 356.

360. Anthrenus scrophulariæ Linn., var. *thoracicus* Mels., var. *flavipes*, var. *lepidus* Lec.—The varieties denote color ornamentation rather than differences of structure. The larvæ of this beetle are sometimes very destructive to carpets, and occasionally infest museums of natural history. It occurs in many places from the Atlantic to the Pacific, but not everywhere. Europe. P. vii, 112; P. Am. P. xx, 369; Amer. Nat. xii, 536.

361. A. verbasci Linn.—*varius* Fab., *tricolor* Hbst., var. *destructor* Mels.—This insect is in bad repute with all who make zoological collections. It appears to be cosmopolite. P. vii, 112; P. Am. P. xx, 370; Can. Ent. xv, 82 and 90. Heyden, 99.

362. A. museorum Linn., *castaneæ* Mels., *verbasci* Fab.—Very abundant from early Spring to June on various flowers. It is not known here to have any bad habits like *verbasci*. Canada and nearly all the States eastward from the Mississippi. Europe. The southern parts of east and west Siberia. P. vii, 112; P. Am. P. xx, 370; Can. Ent. xv, 90; Heyden, 99.

Obs.—Mr. Reitter says *castaneæ* Mels. and *museorum* Linn. are not the same, Ent. Monatsbl. 1880, ii, 86. In America the species runs into races and is otherwise variable. My European examples seem the same as the American.

363. A. fuscus Latr., *claviger* Er.—This European species occurs in Pennsylvania, though I have not met with it. T. v, 252; P. Am. P. xx, 371.

364. Orphilus niger Rossi, *glabratus* Fab., *subnitidus* Lec., ?ater Er.—This species occurs in Spring on various flowers, and extends from ocean to ocean. Europe. Taschkend in Turkestan. P. vii, 113; P. Am. P. 373. Heyden, 99.

Obs.—Examples from Europe labeled "*glabratus*" are identical with the American form, which is quite variable in size and punctuation.

HISTERIDÆ.

365. Hister merdarius Hoffm., *memnonius* Say.—Virginia, West Virginia, Ohio, Pennsylvania (my collection), New York; Canada, Harrington; Michigan, Schwarz. Middle and southern Europe, eastern Siberia. P. Am. P. xiii, 284; Heyden, 89.

366. H. bimaculatus Linn., *obliquus* Say.—Middle States, Horn; Michigan, Schwarz; Pennsylvania (rare here), Illinois, Iowa, my collection. Europe, Kirghis Steppes, Turkestan, Siberia; Horn, l. c. 292; Heyden, 89.

Obs.—Hister parallelus Say (1825) is not H. parallelus Ménet (1832) from Caucasia.

Obs.—Hister corvinus Germ. is said by Zimmerman to occur in South Carolina, but his type is lost and no other example is in collections. T. ii, 253.

Obs.—Hister neglectus Germ., a cosmopolite species in Europe, Asia and Africa, is said by some European authors to occur in North America, but is at present unknown north of Mexico.

367. Carcinops (*Paromalus*) 14-striatus Steph., *nana* Lec.—Middle States to Georgia, Horn l. c. 308; New Jersey, Pennsylvania, Florida, southern California, my collection; Arkansas. Cosmopolitan.

368. Gnathoncus (*Saprinus*) rotundatus Kugel, *deletus* Lec.—"Occurs in the entire Atlantic region and also in California; var. *communis* Mars. is a form found in Canada, and var. *interceptus* Lec. in California and Oregon" (Horn, l. c. 314). Europe. The southern parts of east and west Siberia and Turkestan. Heyden, 90.

NITIDULIDÆ.

369. Brachypterus urticæ Fab., *Cercus pusillus* Mels.—This species is found on the flowers of *Urtica dioica*, with which it has probably been introduced from Europe. "Occurs in the Atlantic States," Horn, T. vii, 270. New York, Canada, Michigan, Kansas, Colorado; abundant here in Pennsylvania. Krasnojarsk, on the Jenisei, lat. 56°; Nord., 25.

370. Cercus bipustulatus Payk.—A few individuals of this European species were once taken near Boston, Mass., Horn, but any further record of occurrence has not been observed; var. *suturalis* Mots. is found in eastern Siberia. T. vii, 272; Murr., 233.

371. Carpophilus hemipterus Linn., *bimaculatus* Mels., *flexuosus* Payk.—Cosmopolitan. Florida, Canada, Alaska, are the extreme points of its occurrence. I take it here mostly in boxes of dried fruit, as raisins, currants, etc., brought from foreign countries. It also occurs in Siberia, l. c. 277; Murr., 362; Heyden, 91.

372. C. dimidiatus Fab., *mutilatus* Er., *luridus* Murr.—"Occurs everywhere in our country excepting the Pacific coast. Its original habitat was probably the West Indies, but it is now cosmopolitan," Horn, l. c. 278; Murr., 377–79; some of the points of its occurrence are Florida, here in Pennsylvania, Ohio, Texas, New Mexico, Colorado, Alaska. Mann., 1852.

373. Epuræa æstiva Linn., *convexiuscula* Mann., *depressa* Gyll.—On this continent this species appears to affect the colder parts. Canada, northern Michigan, New Mexico, Alaska, are all points in its distribution. Mr. F. Blanchard found it in the mountains of North Carolina (*in litt.*). Europe. Western Siberia. Heyden, 92.

374. E. terminalis Mann., *immunda* Er., *infuscata*, *flavomarginata* Mack.—Alaska to Massachusetts; Horn, T. vii, 295; peninsula of Kenai, Mann.; Michigan, Schwarz. Temperate and northern Europe to lat. 68°.

375. E. boreella Zett.—"A narrow black species similar to *nigra* Maeklin common to Europe and America." LeConte, Pr. Acad. 1873, 328; Canada, Pettit, Cat. and northern Europe to lat. 68°. Siberia, Sahlb. En. Fen. Clav., 105.

Obs.—E. luteola Er. The example in Reiche's collection was wrongly labeled, and the species has not occurred in Europe. Fauvel.

376. Nitidula bipunctata Linn., *bipustulata* Linn.—This beetle occurs in many countries, and has been introduced here by commerce. It now extends from Florida to Canada and westward to Colorado, whence I have specimens. West and east Siberia, Amurland, l. c. 302. Heyden, 92; Heyden, 1886.

377. N. rufipes Linn., *obscura* Fab., *ossium* Kirby.—Likewise introduced by commerce, and has about the same American distribution, extending northward to Hudson Bay. West and east Siberia, l. c. 303; Heyden, 92; Amur Territories; Heyden, 1885.

378.– Omosita colon Linn.—This is another introduced European species, and, like the two preceding, occurs here, though greatly more commonly and abundantly. From the Atlantic to Colorado; Queen Charlotte Island, Fletcher; Hudson Bay region, Lec. Cat. The southern contiguous parts of west and east Siberia; Amurland, l. c. 306; Heyden, 92.

379. O. discoidea Fab., *inversa* Lec.—"Occurs in Europe and in the Pacific States, extending as far east as Colorado." Horn, l. c. 306. Northern Michigan, Schwarz; Ottawa, Canada, Harrington, *in litt.* It appears to be very abundant in New Mexico and Colorado.

Note.—Soronia grisea Linn. of Crotch's Check List is *S. undulata* Say. *Grisea* is not known to be American.

380. Meligethes brassicæ Scop., *æneus* Fab., *rufimanus* Lec., *mœrens* Lec., *californicus* Reitter.—"California and Oregon," Horn, l. c. 313. The var. *dauricus* Mots., *viridipennis* Mots. occurs throughout eastern Siberia and Amurland; Col. Am. 129 and figure.—Europe.

381. Cryptarcha strigata Fab., *lateralis* Sahlb.—Many places from the Atlantic to Colorado. A record northward from Michigan has not been noted. Europe, west Siberia, l. c. 322; Heyden, 93; Chabarofka, Heyden, 1886.

382. Ips quadriguttatus Fab., *fasciatus* Oliv., *geminatus*, *bipustulatus* Mels., 4-*signatus* Say, 6-*pustulatus* Reit.—These names indicate merely color variations, and several others might be given with equal propriety to other forms. I observe no structural differences of any permanency

between these forms. Examples of 4-*guttatus* Fab. from Europe have nearly the same markings as *geminatus*. This species occurs everywhere in the United States eastward from the Rocky Mountains and across the northern part of the continent to Oregon and Vancouver, l. c. 323, Can. Ent. xvii, 46.

Obs.—The species erected from this by Mr. Reitter (4-*guttatus*, *fasciatus* and 4-*signatus*) are untenable in any other sense than that of color variations, with abundance of material.

LATRIDIIDÆ.

The species of this family being minute and difficult to recognize, are mostly neglected by collectors, many of them are undescribed, and their distribution is but faintly indicated by the records.

383. Holoparamecus singularis Beck.—A little being, only .03 inch. in length, which inhabits usually under vegetable *detritus* in central Europe, occurred at Fort Yuma, California, under bark. C. 156; and at New York in mouldy straw goods from Italy. Pr. 1876. "Canaries, Egypt, Syria, Caucasia, East Indies. Nearly cosmopolite."

384. Enicmus minutus Linn., *rugicollis* Mann., 1853, *reflexus* Lec.—From the Peninsula of Kenai to Louisiana (Summers) and to Massachusetts and eastern Canada. All Europe and northern Asia to Kamtschatka under bark and about wood. Cosmopolitan, Fauvel.

Obs.—If *E. transversus* Oliv., which, according to Reitter, is likewise cosmopolitan, occurs in northern America, its discovery is not of American record.

385. E. consimilis Mann., *parallelocollis* Mann.—Common on the peninsula of Kenai. Temperate and northern Europe, Lake Baical. Heyden, 96.

386. Lathridius productus Rosenh., Reitt. Stet. Zeit. 1875, 79.—North America, no locality; Mediterranean Europe, Algeria.

387. L. constrictus Gyll., *carinatus* Gyll., *sculptilis* Lec., *incisus* Mann., peninsula of Kenai, Mann., 1853; Michigan, Schwarz; Illinois, Lec. Europe, eastern Siberia. Lec. l. c. 303.

388. L. nodifer Westw., *nodulosus* Mots., B. M. 1866, 261.—Pacific coast from Washington to middle California; District of Columbia, Schwarz. P. W. ii, 39. Temperate and northern Europe, New Zealand.

389. Cartodere filiformis Gyll.—"A specimen of this European species was found in Missouri and another in the Acad. of Nat. Sci. at Philadelphia," LeConte, P. vii, 304. I once took here some specimens of this minute insect in the débris of a box of imported raisins. Detroit, Mich., in an old flour barrel, Schwarz, Psyche i, 147.

390. C. ruficollis Marsh, *pulicarius* Mels.—"Middle and Southern States; sometimes abundant, flying at twilight," LeConte, l. c. 304; P. ii, 115. Westogue, Connecticut, infesting a barn "overrunning everything," Lintner, 6th An. Rep. on Ins. N. Y. p. 183. South America, Europe.

391. Corticaria pubescens Gyll., *grossa* Lec., *piligera* Mann.—"One specimen found at the edge of a salt marsh, near Cambridge, Mass., in May." LeConte, l. c. 299; northern Michigan, Schwarz. Europe. Barnaul, southeastern west Siberia. Heyden, 97. "Africa, Asia Minor, Caucasia, Australia. Probably cosmopolitan."

392. C. fulva Comolli.—United States, Belon. Madeira, Europe, etc.; probably cosmopolite.

393. C. ferruginea Gyll., *fenestralis* Auct., *denticulata* Kirby, *deleta* Mann.—Florida, Michigan, Veta Pass, Col., at 9200 feet, Schwarz; Buffalo, N. Y., Reinecke; very abundant at Lake Superior, LeConte; Hudson Bay region; Alaska. Europe, Kamtschatka; common in Dauria. P. vii, 300; Col. Am. 113; Heyden, 97; Chabarofka, Heyden, 1886.

394. C. serrata Payk., *8-dentata* Say, *prionodera* Lec.—Buffalo, N. Y.; Detroit, Mich.; Nebraska; San Jose, Cal., are recorded as places where this species has occurred. Europe. P. vii, 300. Cosmopolite, as is the following.

395. C. elongata Hummel.—Detroit, Schwarz; I have a specimen from Massachusetts, Blanchard, and have taken it here twice, beaten from herbage. Europe.

396. Melanopthalma distinguenda Comolli, *pusilla* Mels., *pumila* Lec., *morosa* Lec., *subangulata* Mots., ?*villosa* Zimm.—California (Rio Colorado), Lake Superior, Canada, Massachusetts, Pennsylvania, Illinois, Alabama, Georgia. Europe. Cosmopolite. P. ii, 116 and vii, 303.

397. M. similita Gyll., *subimpressa* Zimm.—This species, found in southern Europe, etc., and probably cosmopolite, is cited from North America by Zimmermann. T. ii, 256. Siberia. Heyden, 97.

Obs.—M. transversalis Gyll. and M. gibbosa cosmopolite or subcosmopolite species, according to Mr. P. Belon and Reitter occur in North America; but as no localities are given, and their accompanying American synonymy doubtful, it seems more prudent to await further investigation.

TROGOSITIDÆ.

398. Tenebrioides mauritanica Linn., var. *nitida*, var. *crassicornis* Horn.—From Alaska to Florida in houses, mills and granaries. Europe, Siberia, Turkestan. Pr. 1862, 63; Heyden, 94, Cosmopolitan.

399. Ostoma ferrugineum Linn., *fraternum*, *septentrionale* Rand.—Maine, under bark, Randall, B. I. ii, 17. Pennsylvania (Alleghanies), Vermont (Green Mountains), Canada, Hudson Bay, Lake Superior, Colorado, California, Oregon. Europe, Irkutsk, Chabarofka. Heyden, 94 and 1886.

Obs.—Ostoma (*Lophocateres*) pusillus Klug, *africanus* Mots., *yvani* Allib.—Cosmopolite according to Messrs. Reitter and Léveille is unknown as in American collections. Best. Tab. Trog. 1882, vi, 37; Ann. Soc. Fr. 1888, 446.

400. O. grossum Linn., Reitter, l. c. 35.—North American, Reitter. Central, mountainous and northern Europe, west and east Siberia, the Amur. Heyden, 94; Col. Am., 153.

401. O. oblongum Linn., Reitter, l. c. 37.—North America, Reitter. Central, mountainous and northern Europe.

Obs.—The preceding two species are admitted with hesitation, as no locality is given, and though conspicuous species, they have no North American record.

402. Calitys (*Nosodes*) scabra Thunb., *dentata* Fab., *silphides* Newm., *Peltis serrata* Lec. Pr. 1859, 84.—New York, Canada, Michigan, Lake Superior, Washington, British Columbia, Arizona, Colorado. Central and northern Europe.

MONOTOMIDÆ.

403. Monotoma picipes Herbst., *foveata* Lec., *scabra* Kunze, var. *brevipennis* Kunze.—"From the Middle States to Texas and California," Horn, T. vii, 259; P. vii, 305. Massachusetts (Blanchard), Ohio, Dury; Michigan, Schwarz. St. Helena, Europe, Japan, etc. Siberia and the countries southward. Heyden, 95. Probably cosmopolite.

404. M. 4-foveolata Aubé,—"Occurs in the District of Columbia, Ulke," Horn, T. vii, 260. Europe, Algeria, Japan, etc. Probably cosmopolite.

405. M. longicollis Gyll.—"Three female specimens occurred in the District of Columbia," Horn, T. vii, 261. I took a single specimen here in Pennsylvania. Madeira, Europe.

DERODONTIDÆ.

406. Peltastica tuberculata Mann., var. *Reitteri* Lewis.—A species of this genus has been described by Mr. George Lewis, from Japan, of which Dr. Horn writes: "Having compared specimens sent me by Mr. Lewis with the series in my cabinet of our species, they seem scarcely more than a variety." Oregon to Alaska.

Mr. Lewis states that *Reitteri* differs from *tuberculata* in several characters which he specifies, but in view of the comparisons made by Dr. Horn these do not seem of sufficient value to remove it beyond a variety. Ent. Month. Mag. xxv, 432.

BYRRHIDÆ.

407. Simplocaria metallica Sturm., *Byrrhus tessellatus* Lec. (L. S. 224).—Occurs abundantly at Mt. Washington, N. H. B. J. xvi, 269. The Lake Superior region; Alaska. Mann., 1853. P. vii, 116. Sweden, Hungary, Germany.

408. Cytilus sericeus Forst., *varius* Fab.—This species and *trivittatus* Mels. having remained united for many years and still separable by few except the practiced systematist, the records of distribution in our literature are of no value uncorroborated as to which of the species occurs. Combined it is northward from Pennsylvania to Hudson Bay and westward to Manitoba. Europe, eastern and western Siberia. P. vii, 115; Heyden, 100 and 1886.

409. Byrrhus murinus Fab., *undatus* Mels.—New York, northern Michigan, Lake Superior, Pennsylvania, but apparently not common. Europe, west and east Siberia. P. ii, 117; P. vii, 115; Heyden, 99.

410. B. fasciatus Fab., var. *dianæ* Fab.—A single example was taken on the American side of Behring Strait by the Vega Expedition, p. 53. Previous occurrence: "All northern Asia, northeastern Europe." Kamtschatka, eastern Siberia, Amurland, Japan, Dauria, Iceland. Col. Am., 123; Heyden, 100. There are about twenty named varieties of this species in Europe and Asia. The example taken on the American coast, according to Sahlberg, belonged to var. *dianæ*; var. *kamtschaticus* Mots., occurs in Kamtschatka, Dauria and Japan, and is considered by the describer as possibly a geographical variety of *dianæ*. Mr. Geo. Lewis contends that it is a valid species. Ent. Month. Mag. 1889.

DASCYLLIDÆ.

411. Cyphon variabilis Thunb., *pubescens* Fab., *ovalis* Say, *fusciceps* Kirby, *Helodes picea*, *punctata*, *nebulosa*, *modesta* Lec. T. viii, 108.—This excessively variable species occurs here in the greatest abundance, and in every place that is not too arid from the Hudson Bay region to Florida and Texas, and westward to Vancouver; abundant in Alaska, Mann., 1853. Europe, Algeria, Caucasia, Japan. On the Jenisei and Obi, arctic Siberia. Heyden, 125; Nord., 27.

412. C. padi Linn., *Helodes pusilla* Lec.—"Occurs from Massachusetts to Indiana." Horn, l. c. 110; Bachewaunng Bay, Michipicoton River, Schwarz; Ottawa, Canada, Harrington, *in litt.* Europe, Caucasia. On the Jenisei and Obi, arctic Siberia. Nord., 27; Heyden, 125.

413. C. coarctus Payk., *griseus* Gebl.—This species is said by Guerin to occur in our fauna, but is unknown, Horn, l. c. 109. Europe. Barnaul, west Siberia. Heyden, 125.

ELATERIDÆ.

114. Meristhus scobinula Cand., *texanus* Horn. T. iii, 300; Pr., 1873, 333.—Texas, Mexico. Japan, China, Candez. Elat. i, 165.

115. Cryptohypnus littoralis Esch.; Mann., 1846 and 1853.—Peninsula of Kenai, Kadjak, Unalaschka, Kamtschatka.

116. C. hyperboreus Gyll., *planatus* Esch.; Mann., 1853.—Peninsula of Kenai, Kamtschatka, westward from the Pacific coast through eastern and western Siberia and northern Europe to Lapland; the Alps. Heyden, 121; Ent. News, v, 7.

Obs.—*C. pulchellus* ‡ Auct. Am. is *exiguus* Rand., and not the European species. *C. dermestoides* Hbst. and *C. 4-guttatus* Lapl. mentioned in Ent. News i, 10, were wrongly determined. T. xviii, 19.

117. C. barbatus I. Sahlb., Vega Exp., 30 and 54.—Five examples at Port Clarence, Behring Strait, and eight on the opposite Asiatic coast were taken by the Vega Expedition. Dr. Sahlberg says it differs but little from *C. scotus* Cand. and *C. canaliculatus* Gebl. Dr. Horn, from a type sent by Dr. Sahlberg, says it is possibly an arctic form of *C. Sauberni* Horn from the White Mountain region of New Hampshire. T. xviii, 7.

118. C. nocturnus Esch. var. *lucidulus* Mann, (*vestitus*, *fallax* Mann.), var. *bicolor* Esch. (*limbatus*, *scarificatus* Mann.), *picescens* Lec.—Common in Labrador (Packard); Mt. Washington, N. H., Austin; Lake Superior (LeConte, Schwarz); Veta Pass, Col., at 9200 feet, Schwarz; Alma and Leavenworth Valley, Col., at 9000–10,000 feet, Bowditch; Santa Fé Canon, New Mexico, Snow; Alaska, Mann., Kamtschatka, Nikolaevsk. Heyden, 121 and 1885.

Obs.—C. riparius Fab., said by Candeze to occur in the polar regions of North America, is unknown here; possibly some of the forms of *lucidulus* Mann. might be so referred, Horn. T. xviii, 10.

119. Elater nigrinus Payk., *pilosulus* Herbst., *anthracinus* Lec.—Alaska to Vancouver; LeConte: Queen Charlotte Island, Fletcher; Michigan, Schwarz; Canada, Green Mountains, Vermont, Sprague. Central and northern Europe. Barnaul, on the Obi, west Siberia. Amurland. T. xii, 10; Col. Am., 111; Heyden, 120; Mann., 1853.

420. Campylus variabilis Esch. (Zool. Atlas, 1829, Heft i, 33), var. *varians* Germ., *Sahlbergi* ♀ Germ.—Hudson Bay region, Ulke Cab.; var. *fulvus* Mots.; Alaska, Ulke Cab. Kamtschatka, Koultoe, Nikolaevsk, Chinghan; var. *varians* occurs in eastern Siberia. Heyden, 125, 1885, 300.

421. Melanotus castanipes Payk., *obscurus* Oliv. (*scrobicollis* Lec. ♂ *castanipes* Lec. ♀. Horn, *in litt.*); *inæqualis* Lec.—This species, as thus constituted, occurs from the Middle States to Canada (Pennsylvania, Ohio, New York, Green Mountains, Vermont, Michigan, Lake Superior region). Europe, west Siberia, Amurland. T. Am. P. x, 476; Heyden, 121; 1884.

422. Athous undulatus DeGeer, *trifasciatus* Herbst., var. *bifasciatus* Gyll., var. *unifasciatus* Motsch.—"Mr. Ulke received specimens of this species from Hudson Bay, LeConte. Pr. 1866, 391; notice of its occurrence elsewhere has not been observed. Europe, Siberia (Iakutsk, on the Lena, and several places in the Government of Tomsk). Heyden, 122.

423. Paranomus (*Eanus*) costalis Payk., *Limonius vagus* Lec.—The northern shore of Lake Superior, LeConte; Isle Royal, Schwarz; Mt. Washington, N. H., Austin; Labrador, Packard; Europe (Sweden, Finland, Lapland). Nikolaevsk, on the Amur. T. Am. P. x, 434; Col. Am., 112; Heyden, 124.

424. Corymbites virens Schranke, *anchorago* Rand., *Kendalli* Kirby, *æneicollis* Oliv.—This fine species is found in the northern range of States, and northward through Canada to 65° latitude. Maine (Randall), Mt. Washington, N. H., Austin; Canada (various collectors); Detroit and Marquette, Mich., Schwarz; north side of Lake Superior, LeConte. I have a specimen from Manitoba. Europe (Germany, Austria, France), l. c. 444; B. J. ii, 5.

425. C. sjaelandicus Müller, *tessellatus* ‡ Fab., Cand. et plur. Auct., *micans* Germ., *viridis* Say, *cuprascens* Lec. var. *assimilis* Gyll.—New York and the New England States, LeConte; Green Mountains, Vermont, Sprague; Detroit, Mich., Schwarz; Canada. Specimens from the Italian Alps are identical with my specimens from Canada; arctic, east and west Siberia. Turcomania; l. c. 444–45; Heyden, 123.

426. C. sericeus Gebler.—The peninsula of Kenai (*fide* Ménétriés). Kamtschatka, Amurland, west Siberia. Mann., 1853; Heyden, 123.

427. C. nigricornis Panz., *metallicus* Payk., *nitidulus* Lec.—Abundant at Lake Superior, LeConte; Oxford House, lat. 54° 53′; Detroit and Marquette, Mich.; Garland and Veta Pass, Col., at 9400 feet, Schwarz; Massachusetts. Central and northern Europe; l. c. 438. Siberia, Heyden, 123.

428. C. cruciatus Linn., *pulcher* Lec., *festivus* Lec.—Widely distributed, though not common. Green Mountains, Vermont, Sprague; New Hampshire, LeConte; Ottawa, Canada, on beech logs, Harrington; Steilacoom, Washington, LeConte; Vancouver Island. Europe; l. c. 440; T. iii, 323; P. R. R. 46; Can. Ent. xvi, 71.

429. C. rugosus Germ., Bonel., var. *confluens* Gebl.—Peninsula of Kenai, Mann. Siberia from the Altai Mountains to the Pacific coast, southern Russia, Caucasia, the Alps. Col. Am., 109; Heyden, 124.

430. C. (*Elater*) semivittatus Say, *tristis* Cand.—Specimens of *tristis*, taken in Japan, on comparison, do not differ from *semivittatus*, which is the older name. Horn, T. x, 288; T. vii, p. xyi.

BUPRESTIDÆ.

431. **Chalcophora virginiensis** Drury, **C. angulicollis** Lec., **C. mariana** Linn. —These names in the catalogues are specific. Numerous specimens of *virginiensis* from the eastern Atlantic States to Florida; of *angulicollis*, from the Rocky Mountains and Vancouver, and of *mariana* from Europe, have been seen and compared, with the result that there has been no character observed permanent enough to more than separate them into geographical races. The external sexual characters are apparently the same. There are as valid reasons for making species of at least two other forms which I have seen as of the above.

C. virginiensis Dury, *virginica* Say, *liberta* (var. *obscura*), Fitch, *novæboracencis* Fitch.—Middle, Eastern and Southern States, LeConte; var. *lacustris* Lec. (Crotch). Lake Superior.

C. angulicollis Lec., *oregonensis* Fitch.—Vancouver to New Mexico and California.

C. mariana Linn., *hiulca* Pallas.—Europe, west Siberia (the Obi and tributaries). T. Am. P. xi, 190; Pr. 1873, 84; Heyden, 115.

432. **Melanophila appendiculata** Fab., *longipes* Say, *immaculata* Mann.—The Yukon, Sitkha, Vancouver to Hudson Bay and southward to Virginia, Kentucky, New Mexico and southern California. Cuba; Kamtschatka, Siberia, China, Europe. T. x, 104; T. Am. P. xi, 211; Col. Am., 85 and 103; Heyden, 117; Mann., 1852.

433. **M. guttulata** Gebl., *discopunctata* Fald., *Drummondi* Kirby (Mannerheim's synonymy 1843 and 1853).—Exceedingly variable. The Yukon, California, Rocky Mountains to New Mexico, Hudson Bay region. All Siberia, the Amur countries, Mongolia. T. Am. P. xi, 213; Col. Am., 108; Heyden, 117; Heyden, 1885.

Obs.—**Trachykele blonsdeli** Mars., has been omitted from Cat. iv, as it did not successfully acclimate in Europe when introduced.

434. **Anthaxia salicis** Fab.—This brilliant little European species was taken by H. A. Brous, at Smoky Hill, Kansas, on a Malvaceous plant as recorded by Dr. Horn, T. x, 107. Its further occurrence has not been noted.

Obs.—Other species of Buprestidæ may prove to be same as the European when enough of examples are examined, as *Dicerca divaricata* Say and *Buprestis furcatus* Thunb., *acuminata* Pallas.

LAMPYRIDÆ.

This family is not in great favor with collectors and systematic writers, and while the more common and conspicuous species are superficially known, a commencement of the study is about all that can be claimed. Only two species, one of them introduced, have so far been identified with European or Asiatic species; others may in time.

435. **Eros aurora** Hbst., *coccinatus* Say.—From Georgia to the Mississippi, northward to Hudson Bay and westward to Alaska (Wrangel Island, Wickham; Oregon, here in Pennsylvania). Europe, Algeria, eastern and western Siberia. T. ix, 24; Heyden, 126.

436. **Lamprohiza** (*Phausis*) **splendidula** Linn.—"Introduced from Europe, and apparently naturalized in Maryland and Illinois," LeConte, ix, 36.

MALACHIDÆ.

437. Malachius æneus Linn.—This European species occurred at Cambridge, Mass., but does not seem to have spread widely. P. vi, 165; T. iv, 113. Eastern and western Siberia. Heyden, 128.

CLERIDÆ.

438. Opilus domesticus Sturm.—This species of northern and central Europe has been introduced into Canada, LeConte's List, 55. It occurred but once, and has not been found since. Horn.

439. Tarsostenus univittatus Rossi, *albofasciatus* Mels., *Tillus picipennis* White. —This is a cosmopolitan species which has occurred at a few places in North America. Pennsylvania, Melsheimer; Texas, LeConte. Pr. 1873, 334; An. Lyc. v, 17; J. A. iv, 36.

440. Laricobius Erichsoni Ros., *rubidus* Lec. (C. 220).—District of Columbia under the bark of a conifer, LeConte; Detroit and Marquette, Mich., Schwarz; Ottawa, Harrington; Massachusetts, Blanchard. New York, Ent. Am., vi, 154. Europe (the Alps).

441. Necrobia rufipes DeG., *reticulata* Esch.—This species and the two following are well known cosmopolites. *Rufipes* is found from Florida to Vancouver, and throughout Europe and Siberia. Riley, Missouri Rep. vi, 96; Heyden, 130.

442. N. ruficollis Fab.—This species is as widely distributed as *rufipes*, extending to Alaska. It does not seem to have occurred in Siberia. It lives mostly on carcasses. This beetle has attained celebrity as instrumental in saving the illustrious Latreille from transportation and consequent death.

443. N. violacea Linn.—Nearly everywhere in North America. Probably native as well as introduced, since it is spread over eastern and western Siberia, Europe. An. Lyc. iv, 162; Col. Am., 113; Heyden, 130.

PTINIDÆ.

The species of this family here catalogued have been introduced from Europe, with perhaps one exception, being transported from place to place in articles of commerce.

444. Gibbium psylloides Czempinsk, *scotias* Scop.—My specimens of this curious species are from New Orleans, La.; Charleston, S. C., Horn. Central and southern Europe, in old buildings. Nearly cosmopolite.

445. Mezium americanum Lapl., *arachnoides* Desbr., *bicolor* Dej. Cat.—Florida, Schwarz; Florida and Louisiana, my examples; occurs in old hay and rat's nests. ? District of Columbia, Riley. Hubbard, P. W. i, 14. Greece, Morocco, Cape Verd, Madeira, Canaries, South America, etc.

446. Sphæricus gibboides Boisl.—Found depredating on plants in the Calif. Acad. Sciences, Harford, *in litt.* Europe, Sicily, Algeria. P. W. i, 174.

447. Ptinus fur Linn., *humeralis* Say, *americanus* Fald.—This species inhabits old houses, natural history museums, etc., and occurs occasionally in all parts of our country to Alaska. It is common in Europe and Asia to Kamtschatka. Col. Am., 154; Heyden, 130. "Possibly cosmopolite."

448. P. **brunneus** Duft., *frontalis* Mels.—Occurs in the District of Columbia, where it is commonly bred from rats' dung by Mr. Pergande (Proc. Ent. Soc. Wash. i, 14). I take it here in Pennsylvania; Ohio, Dury; Missouri, Schuster; Texas, Belfrage. France, Germany, southern Europe, north Africa, Asia, New Caledonia, etc.

449. **Ernobius mollis** Linn., *convexifrons* Mels.—"A common European species introduced into the Atlantic States," LeConte (Pr. 1865, 224; Pr. 1861, 352). Melsheimer took it in south-eastern Pennsylvania, and it occurs here; northern and southern Michigan, Schwarz; Louisiana, Summers. Europe. Barnaul on the Obi, west Siberia. Heyden, 131.

450. **Xestobium rufovillosum** DeG., *tessellatum* Fab.—"Introduced into the Atlantic States from Europe," LeConte (l. c. 227). I have seen no native specimens, nor record of occurrence. The specimens in Blanchard's and Horn's collections are from Massachusetts.

451. **Sitodrepa panicea** Linn., *tennistriata* Say, *obesa* Mels.—This is a cosmopolitan species common throughout North America to Alaska, Europe, and all Siberia to Kamtschatka. It is often a great pest in houses, stores and museums, l. c. 229; Can. Ent. xv, 92; Col. Am., 154; Heyden, 131.

452. **Nicobium hirtum** Ill.—Dr. LeConte had in his collection a specimen probably taken in Georgia, and Schwarz took one in Florida. I have observed no other record of its occurrence in this country. Europe (France, Spain, Italy). LeConte, l. c. 231.

453. **Lasioderma testaceum** Duft., *serricorne* Fab.—Cosmopolite, and commonly known as the tobacco or cigarette beetle. It depredates on tobacco, allspice, cayenne pepper and other acrid substances. Common in tobacco establishments in the Southern States, and sometimes as far north as Canada. It inhabits the warmer portions of the globe by preference.

454. **Endecatomus reticulatus** Hbst.—Probably introduced from Europe into the Southern States, Horn (P. Am. P. xvii, 540. Central and southern Europe. Eastern Siberia. Heyden, 1886.

455. **Dinoderus substriatus** Payk.—Abundant on the peninsula of Kenai, Mann., 1853; Veta Pass, Col., at 9400 feet; Michigan, Schwarz; Canada, various collectors; Northern States, Horn, l. c. 549. Europe, eastern and western Siberia. Heyden, 131.

456. D. (*Rhizopertha*) **pusillus** Fab.—Pennsylvania (in wheat at the Centennial Exposition), Arizona, Horn, l. c. 550; Canada, my collection. Cosmopolite.

Obs.—Lyctus **brunneus**, a cosmopolite species, said by Mr. Reitter to occur in North America is unknown here. Best Tab. Lyct. ed. ii, 43.

SCARABÆIDÆ.

457. **Onthophagus nuchicornis** Linn., *rhinoceros* Mels. T. ii, 134.—Pennsylvania, Melsheimer; New Brunswick, Rhode Island, the Magdalen Islands in the Gulf of St. Lawrence (Henshaw, Can. Ent. xix, 160); abundant near Camden, N. J., Seeber. Europe, western and southeastern Siberia. Heyden, 103.

Obs.—O. **ovatus** Linn. The species in our literature so named is *pennsylvanicus* Harold.

458. Aphodius fossor Linn.—Mt. Washington, N. H.; the Green Mountains, Vermont; Canada, Detroit, Mich.; Iowa, Wickham; Pennsylvania (here in the Alleghanies). Eastern Siberia, Turkestan. Heyden, 104; see for this and all the following species Horn's Monograph, T. xiv, 4, *et seq.* Probably native in America as well as introduced.

459. A. erraticus Linn., *pensvallensis* Mels. P. ii, 135.—Introduced, doubtless through commerce, into the Middle States (Horn); abundant in Druid Hill Park in Baltimore, and in the surrounding counties in Maryland (Lugger, P. W. i, 49). Eastern and western Siberia. Heyden, 103. Europe.

460. A. fimetarius Linn., *nodifrons* Rand.—Also a common, introduced European species found abundantly nearly every place east of the Rocky Mountains. "It will probably invade every portion of our territory (Horn)." Turkestan, eastern and western Siberia. Nord., 26; Heyden, 104.

461. A. aleutus Esch., var. ursinus Mots. Mann., 1843-1853.—Aleutus, Unalaschka, Wrangel, Washington, Oregon, California, New Mexico. Colorado (Alma, at 10,000 feet); var. *ursinus*, peninsula of Kenai, Colorado (Leavenworth Valley at 11,000 feet, Bowditch). Kamtschatka, eastern and western Siberia. Heyden, 105.

462. A. putridus Herbst., *fœtidus* Fab., *tenellus* Say.—"Probably introduced from Europe, and occurs from the Atlantic coast to Colorado and New Mexico." Horn. Western Siberia. Heyden, 104; Nord., 26.

463. A. granarius Linn., *aterrimus* Mels., *metallicus*, *spretus* Hald.—From Europe this species has been spread by commerce throughout the world, Horn. It inhabits the United States and Canada generally. Eastern and western Siberia. Heyden, 104. In this instance, as in some others, we may possibly have the species as a native as well as by introduction.

464. A. lividus Oliv.—Widely distributed in the eastern hemisphere: it has been introduced in the West Indies, whence it has probably spread to our Southern States, extending west to New Mexico, Horn. I take it here though not abundantly. Siberia (Nikolaevsk); Heyden, 1885. Probably cosmopolite.

465. A. inquinatus Fab., *maculipennis* Mels.—Introduced from Europe. Abundant nearly everywhere east from the Rocky Mountains. Eastern and western Siberia. Heyden, 105.

466. A. rufipes Linn.—This fine species occurs in the mountains of Pennsylvania, Maryland and North Carolina. Probably indigenous and not introduced, Horn, T. xiv, 53; Can. Ent. xx, 9 and 66. Inhabits Siberia (place not mentioned) and Europe generally. Heyden, 106.

467. A. depressus Kug.—One specimen was found in New York by Mr. A. Merkel, "and it is barely possible this may be an accidental introduction (Horn, l. c.)." Europe generally, eastern and arctic Siberia. Heyden, 106.

468. A. prodromus Brahm.—Maine, Fernald. Abundant at Ottawa, Canada, Fletcher. Europe, Siberia, Horn, l. c. 60; Heyden, 105.

469. Oxyomus sylvestris Scop., *porcatus* Fab., *opacifrons* Horn.—Occurs near Peakskill, N. Y., New York and Philadelphia, and evidently introduced from Europe, where it is common. Horn, l. c. 65; T. iii, 284.

470. **Pleurophorus cæsus** Panz.—Probably introduced from Europe into the Middle States; it has been taken abundantly near Baltimore by Mr. Lugger, and near Washington by Mr. Ulke (Horn, l. c. 91). T. iii, 291. Madeira, Canaries, north Africa, Chili, Turkestan. Heyden, 106.

471. **Hybosorus Illigeri** Reiche, *arator* Ill., *carolinus* Lec.—Common in southern Europe; occurs in the Southern States, but is not common in collections. Turkestan (Sols. 76, 351). Heyden, 107. See a description by Dr. LeConte, J. Acad. i, 84. Senegal (western Africa), my collection.

472. **Trox scaber** Linn., *variolatus* Mels. P. ii, 138.—From the Atlantic to the Rocky Mountains. South America, Australia, Africa, Europe, Asia, etc. Siberia, Turkestan. Heyden, 108; Horn, T. v, 11. Seemingly cosmopolitan.

473. **Tropinota hirta** Poda, *hirtella* Linn., *Cetonia vestita* Say.—Described by Say from two examples—one in the Philadelphia Museum and another from Dr. Wm. T. Harris, Milton, Mass.; taken also in Massachusetts by Mr. E. P. Austin in 1879. T. viii, p. xix. Europe, Asia Minor, Caucasia, Persia, Turkestan, western Siberia. Heyden, 113.

CERAMBYCIDÆ.

474. **Tragosoma depsarium** Linn., *Harrisii* Lec.—Distributed from New Foundland to the Pacific coast, southward to New York, here in Pennsylvania, and through the Rocky Mountains to New Mexico and Arizona; not common however. Irkutsk, various places in western Siberia, mountainous and northern Europe; Heyden, 183; Col. Am., 153; Can. Ent., xxiv, 239. The species is very variable, notably in the form and punctuation of the thorax. Examples from Europe and the Pacific coast are identical. Those from the East and from the Rocky Mountains have the thorax irregular and more closely punctured.

475. **Hylotrupes bajulus** Linn., *bullatus* Hald.—The eastern States, Buffalo, N. Y., eastern Pennsylvania, Georgia, Louisiana. Probably introduced. Europe. Cosmopolite, Fauvel.—(Colorado, in the first edition was an error).

476. **Phymatodes testaceus** Linn., var *variabilis* Linn., *ventralis* Hald.—This species, with numerous named varieties, is spread over Europe, from which it is supposed to have been introduced into this country. Massachusetts to Alabama (Hald.), Louisiana, Summers; here in Pennsylvania, Kansas, Wisconsin; Buffalo, N. Y.; Detroit, Mich.: Arizona, Horn, *in litt.*

477. **P. lividus** Rossi, *melancholicus* Fab., *thoracicus* Comoll.—Middle States, Canada (Ottawa), Can. Ent. xvi, 72. Southern Europe. Introduced.

Obs.—**Callidium violaceum**, an Eur.-Asiatic species, is spoken of in our literature, but the specimens referred to it belong either to *antennatum* Newman, or *janthinum* Dej., which Dr. LeConte says are distinct from it, and valid species, J. A. P. ii, 34. Arctic, east and west Siberia; Amurland. Heyden, 184.

478. **Gracilia minuta** Fab., *fusca* Hald.—Introduced from Europe in articles of commerce into the Eastern States, in which it occurs in various localities. I have taken it here twice; Buffalo, N. Y. (Reinecke); New York, Georgia. Madeira, Canaries, Algeria, Japan.

479. Neoclytus erythrocephalus Fab.—This species occurs in Europe, in Dalmatia and Istria in the Adriatic Sea. It is common here, and inhabits nearly every portion of our territory eastward from the Rocky Mountains. Mr. Fauvel says this species should be erased from this and the European catalogue, having been merely an accidental importation into Europe from America.

480. Rhagium inquisitor Linn., *indigator*, *minutum* Fab., var. *lineatum* Oliv., *investigator* Muls.; var. *investigator* Mann., 1852.—Common from Florida to Alaska in the pine regions; Mexico. Kamtschatka, Japan, countries of the Amur, the pine regions of Siberia and Europe. Col. Am., 149; Heyden, 192. This widely distributed species offers varieties which have been considered specific. Their identity seems to have been sufficiently established by Kolbe, Entom. Nachricht, 1884; *lineatum* is the general American form; *investigator* Mann. occurs in Alaska, and to some extent on the Pacific slope.

481. Acmæops pratensis Laich, *strigilata* Fab., var. *ustula* Gebler (*fulvipennis* Mann., *longiceps* Kirby, *semimarginata* Rand.).—From Hudson Bay to Alaska, southward to Maine and northern Michigan, and down the Rocky Mountains to New Mexico; California; alpine and northern Europe, many portions of arctic and eastern Siberia, northern China; the var. *ustulata* Gebler is found throughout eastern Siberia and in Kamtschatka, and is the prevailing American form, l. c. 235; J. A. P. i, 312 and 323; Annals and Mag. Nat. Hist. 1870, v; Col. Amur. 148; Heyden, 194.

482. Leptura 6-maculata Linn., *G. fasciata* Fab.—Hudson Bay southward to Lake Superior and Michigan, Mount Washington, N. H., northern Europe, the Alps, western and eastern Siberia; J. A. P. i, 312 and 333; Col. Am., 148; Heyden, 195. The varieties *parallelopipeda* Mots. and *dentatofasciata* (Mann.) occurred at Nikolaevsk. Heyden, 1884, 228.

483. L. canadensis Oliv,, Fab., var. *variicornis* Dalm. (*erythroptera* Kirby, *cinnamoptera* Hald.), Schonh. System Ins. i, 3, 482; var. *cribripennis* Lec.; very variable. *Variicornis* should be compared with *erythroptera* or *cinnamoptera*, as a comparison with typical *canadensis* might be misleading (see Ent. Am. ii, 161, and Can. Ent. xxv, 278); it does not appear in Cat. iv. Across the northern part of the continent from the Atlantic to the Pacific, through the Rocky Mountains to New Mexico, and also in the Alleghanies. Europe (northern Germany; Russia); western and common in eastern Siberia to the mouth of the Amur. Col. Am., 147; Heyden, 196. Japan, Jour. Linn. Soc. xviii, 217. An entirely black example was taken in Japan by Mr. George Lewis, l. c.

Obs.—It is probable that in the progress of systematic investigation several other species of the Cerambycidæ of the two hemispheres may be found to be at least racial. Maeklin, in his comparisons of related forms of northern Coleoptera (Bidrag Kännedom om Sakallade, etc., 1855, p. 53) mentions the following as close: *Ascmum striatum* Linn. and *mæstum* Hald.; *Criocephalus rusticus* Linn. and *agrestis* Kirby; *Tetropium fuscum* Fab. and *cinnamopterum* Kirby; *Callidium æneum* DeG. and *cicatricosum* Mann.; *Monohammus sutor* Linn. and *scutellatus* Say.

CHRYSOMELIDÆ.

Obs.—Donacia dentata Hope, not being clearly North American, is erased.

484. Zeugophora scutellaris Suff., *subspinosa* Gebler.—Detroit (Michigan), Schwarz; New Mexico, Oregon Horn; northern Illinois, my collection; northern and middle Europe, western Siberia. T. xix, 7; Heyden, 198.

485. Crioceris asparagi Linn., var. *maculipes* Gebl.—Introduced from Europe about 1859 into Long Island, N. Y.; it has spread inland southwardly to Fairfax County, Virginia, and westwardly through Geneva, N. Y., to Akron and Cleveland, O. (Webster, 1893); Lintner, 1st Rept. N. Y. 239–246; Siberia.

486. C. 12-punctatus Linn.—Observed first near Baltimore, Md., in 1881, by Mr. O. Lugger, on asparagus, in 1886, it had reached Washington City (P. W., i, 59), and in 1893, southern New Jersey, Smith. Europe, parts of western Siberia, and var. 10-*stigma* Suff. the Amur countries. Heyden, 198.

487. Adoxus obscurus Linn., var. *vitis* Fab.—From Mount Washington, N. H., to Hudson Bay; westward to the peninsula of Kenai, Alaska, and southward to California and New Mexico through the Rocky Mountains, but in the Atlantic States has not been recorded south of New York; var. *vitis* is the Canadian form; *obscurus*, the prevailing Rocky Mountain form and the Alaskan form, still another variety. Europe, eastward through Siberia to the Amur. Heyden, 204; Mann., 1853; Horn, T. xix, 198; Can. Ent., xxv, 278.

488. Entomoscelis adonidis Pallas.—Everywhere through the Rocky Mountains at 8000–11,000 feet, Bowditch; Montana; Hudson Bay region, Kirby; Alberta, Wickham; Manitoba and N. W. British Provinces; southern Europe; France; Germany; western and eastern Siberia to Turkestan. Heyden, 208; Col. Am., 222; Fletcher, Canad. Exp. Farm Rep. 1892, p. 152; ib. 1893, author's ed. p. 17.

489. Prasocuris Phellandrii Linn., *Helodes trivittata* Say.—Illinois (Crotch), Ottawa, Canada, Harrington; Detroit, Mich., and Veta Pass, Col., at 11,500 feet, Schwarz. Europe; western Siberia. Heyden, 209; T. xiii, 140.

490. Phædon armoraceæ Linn., *cochleariæ* Panz.—Crotch referred two specimens in Dr. LeConte's collection without exact locality to this species (Pr. 1873, 53); no notice of its occurrence since has been observed, except that it is in Mr. Reinecke's Catalogue of Buffalo Coleoptera. Central and northern Europe; common throughout all Siberia. Col. Am., 224; Heyden, 209.

491. Gastroidea polygoni Linn., *cæruleipennis* Say.—A common and abundant species, occurring from Nova Scotia to the Mississippi on *Polygonum* (*aviculare*). Europe, Turkestan, eastern Siberia. Heyden, 208.

492. G. viridula DeG., *raphani* Herbst., Kirby, *formosa* Say.—Hudson Bay region at lat. 54°, Kirby; Kansas, Snow; Manitoba, New Mexico, my collection. Northern and temperate Europe, western and eastern Siberia. Heyden, 208; Can. Ent., viii, 191. American and European examples do not seem to differ.

493. Melasoma (*Lina*) lapponica Linn., *interrupta* Fab.—Peninsula of Kenai, Hudson Bay region, nearly every part of North America, on *Salicaceæ* or *Salix*. Europe, Siberia, China. Mann., 1853; Col. Am., 224; Nord., 29; Heyden, 205.

494. M. tremulæ Fab.—Hudson Bay Crotch; Mount Washington, N. H., Austin; northern Michigan, Schwarz. Northern Europe; Riley, in the Amer. Ent. 1880, 160.

495. Phylodecta arctica Mann., *affinis* ‡ Mann.—Occurs abundantly in Alaska; Nelson and Churchill Rivers, Hudson Bay Territory, Dr. R. Bell. Mannerheim describes five color varieties. Mr. George R. Crotch considered it a probable variety of *G. linnæana* Schrank, *triandræ* Suff., which occurs in arctic Siberia and southward to the Amur. Mann., 1852–53; LeConte Cat.; Pr., 1873, 52; Heyden, 208; Col. Am., 223.

496. P. pallida Linn.—Also very variable in color, sculpture and markings. Kirby's *rufipes* is placed in synonymy by Dr. Horn. The Hudson Bay region, Kirby; York Factory, Hudson Bay and Norway House to Oxford House, LeConte Cat.; Lake Superior, LeConte; Marquette, Isle Royal, Bachewaunng Bay, Schwarz. Central and northern Europe; western Siberia. Heyden, 208; Can. Ent. viii, 191.

Obs.—*Rufipes* DeG. very similar in form and markings, but with finer punctuation and striation; not certainly known to occur in America.

497. P. viminalis Linn., Mann. 1853.—The Yukon, Alaska; arctic and western Siberia to the Amur countries; mountainous and northern Europe. Heyden, 108.

498. Phyllodecta vulgatissima Linn., ? *interstitialis* Mann., 1853.—Iowa to New Hampshire and southward to Ohio and Virginia on *Salix* (*longifolia*). All Siberia, China, Turkestan, Europe, Canaries, Iceland, etc. *Interstitialis* occurs on the Yukon. Nord, 30; Heyden, 209.

499. P. vitellinæ Linn.—Lake Superior, Kirby, LeConte; Ontario, Bethune. Can. Ent. viii, 191. Europe, arctic and western Siberia; the Amur countries; Heyden, 209.

500. Agelastica (*Sermyla*) halensis Linn., Pr., 1865, 210.—Connecticut (Farmington), LeConte; Louisiana, Summers; Wisconsin, Ulke; west Siberia, common in Europe. T. xx, 131; Heyden, 211.

501. Galerucella nymphææ Linn., *sagittariæ* Gyll., *marginella* Kirby, *femoralis* Mels., *luctuosa* Mann. (Horn, T. xx, 79).—Peninsula of Kenai, Oregon, California, Fort Simpson, on the McKenzie River, eastward to Hudson Bay and southward in the Atlantic district to Virginia and Texas. Europe, western and eastern Siberia, the Amur. Heyden, 210; Col. Am., 232. In Cat. No. iv, *nymphææ* Linn. and *sagittariæ* Fab., represent species. Dr. Geo. H. Horn l. c. unites them. Abundant on *Nymphæa*, *Nuphar* and *Sagittaria*.

502. G. luteola Mull., *xanthomelaena* Schrank, *calmariensis* ‡ Fab. not Linn. [*gelatinariæ* Fab.].—This is the latest observed European synonymy for this much confused species, and annuls the Siberian distribution in the first edition. Imported from Europe into the Eastern States, it defoliates the elm. Massachusetts to Virginia, but not recorded as yet from west of the Alleghanies; see Agricultural Rep. 1867, p. 624; Lintner, Insects of N. Y. Rep. v, 234; Insect Life, vols. i–iv.

503. Crepidodera rufipes Linn., *erythropus* Mels., T. xvi, 239.—From the Atlantic to eastern Colorado. Europe. Depredates on *Rosaceae* and *Robinia*.

504. C. helixines Linn., *nana* Say, *violacea* Mels., *areola*, *opulenta* Lec.—Abundant on *Rosaceæ* and *Salix* from the Atlantic to the Pacific; Europe, Siberia. Heyden, 211 and 1885.

505. C. modeeri Linn., var. *maculata* Lec.—Hudson Bay, Crotch; Detroit and Marquette, Mich., Schwarz; *C. maculata* California, LeConte; Oregon, Crotch; Kansas, Popenoe. Europe, western and arctic Siberia. Heyden, 211. Depredates on aquatic plants.

506. Phyllotreta sinuata Stephens, *Zimmermanni* Crotch.—Missouri, Riley, Crotch; Detroit, Schwarz; western Pennsylvania, my collection; the New England States to Missouri, Horn. Europe, Mediterranean countries, eastern Siberia, Japan. Heyden, 211; T. xvi, 295.

507. Cassida nebulosa Linn., *affinis* Fab., Ent. News, v, 146.—California (Santa Anna River). Europe, western and eastern Siberia, Amur countries, Turkestan, Persia; var. *tigrina* DeG., Siberia. Heyden, 213; Pochrofka, Heyden, 1885. Depredates on beets.

BRUCHIDÆ.

Obs.—Bruchus rufimanus Bohm. has been bred twice in America, once from pea-pods imported from Switzerland (Riley), and once from Windsor beans imported from Europe (Fletcher), but there is no evidence of its acclimatization. *B. lentis* Bohm. was taken by Mr. O. Reinecke, at Buffalo, N. Y., in a provision store, where lentils were kept on sale, and most probably was imported. It is the *rufimanus* of Reinecke and Zesch's catalogue. The American history of these two species is given in Mr. J. A. Lintner's 7th Report on the injurious and other insects of the State of New York, 1891.

508. Bruchus pisorum Linn., *pisi* Linn.—Abundant over nearly the entire globe wheresoever peas are cultivated. Apparently cosmopolite, T. iv, 315.

509. B. chinensis Linn., *scutellaris* Fab.—"This species appears to have been widely distributed over the entire globe (Horn, l. c. 318)." Probably of Asiatic origin. Louisiana, Florida, Georgia, Virginia, Tennessee, Texas, South America, etc.

510. B. obtectus Say, 1831; *legumenarius* (Chevr.) Gyll., 1833; *irresectus* Schon. Fabr., 1839; *pallidipes* Chev. Fabr.; *subellipticus* Woll., 1854; *fabæ* Fitch, 1865; *Breweri* Crotch, 1867; *fabæ* Riley, 1871; *obsoletus* ‡ Horn, 1873; *subarmatus* Janson (?*subarmatus* Gyll.), 1889.—The long disputed point whether *obsoletus* Say, or *obtectus* Say, should be the name of this species is *possibly* settled. It depredates especially on beans, but has been bred from peas, lentils, chick peas, and the seeds of *Lathyrus sativus* (Psyche vi, 447). It is said by Mr. Fauvel to have originated in Central and South America, whence it has been transported in beans to North America, the Antilles, Madeira, the Canaries, Azores, Europe, circa-Mediterranean, Persia, etc. For its North American history see Lintner l. c.; Can. Ent. xxiv, 162; Insect Life v, 31.

511. B. quadrimaculatus Fab., *Baudi* Dent. Ent. Zeit. 1890, 338.—Texas, in beans and cow-peas (*Dolichos* sp.), Riley; Southern States and West India Islands, Horn. Southern France, Ethiopia, Baudi. Mr. Baudi, in his monograph of the genus 1886-87, united this species with *ornatus* Bohm, but in l. c. reinstated it. Psyche vi, 478.

TENEBRIONIDÆ.

Obs.—Pseudonosoderma amurense Heyden (Dent. Ent. Zeit. 1885), should be compared with *Phlœodes diabolicus* and *Noserus plicatus*.

512. Blaps mucronata Latr.—A few specimens of this European species occurred near Baltimore, Md., Horn. Algeria

513. B. similis Latr.; Can. Ent. xvi, 37; xxi, 101.—Occurred abundantly at Alexandria, Va., but it is doubtful whether it is found there at present. Europe, Asia, Madeira, Canaries. This and *mucronata* were compared with the European forms by Dr. Horn when in Europe.

514. Upis ceramboides Linn., *reticulata* Say.—From Hudson Bay southward to Pennsylvania (Nova Scotia, Harrington, *in litt.*; Maine, Vermont, New Hampshire, New York, Michigan, Wisconsin, Manitoba, Montana). Germany, northern Europe, eastern Siberia, the Amur basin. Tr. Am. Phil. Soc. xiv, 338; Col. Am. 139. 139. Iarzowa Selo, Jenisei, lat. 60° 10′. Nord., 27; Heyden, 146. Northern China.

515. Tenebrio obscurus Fab., *tristis* Hald.—This common European species has been introduced into this country by commerce, and is spread from the Atlantic to the Rocky Mountains; also in eastern and western Siberia, l. c. 345; Heyden, 146. This and the following are cosmopolite.

516. T. molitor Linn.—This species, likewise introduced from Europe by commerce, occurs over the United States and Canada from Nova Scotia to Alaska, and southward to Mexico, depredating on flour and stored grain. Eastern and western Siberia. Heyden, 146.

517. Tribolium ferrugineum Fab.—This and the eight following species have been introduced by commerce, and are found where flour and grain are stored. The occurrence of this species in this country is noted in various places from Florida to Alaska. Europe. Lintner gives a good account of it in 2d Rept. State Entomologist, N. Y., p. 136–39.

518. T. confusum Duval, *ferrugineum* Muls. not Fab.—Pennsylvania (Allegheny), Kansas, District of Columbia, France, Germany, Italy, Siberia. Cosmopolite. Differs from *ferrugineum* Fab., by the last three joints of the antennæ less thickened, the absence of the thoracic impressions and more convex and less elongate form.

519. T. madens Charp.—Though widely distributed in this country, this species does not appear to be common. I have specimens from New Mexico and Hamilton, Canada; Ottawa, Harrington; Marquette, Mich., Schwarz; here in Pennsylvania. Southern Europe.

520. Gnathocerus cornutus Fab.—Occurred in California, inside of an army biscuit, Horn, l. c. 336; Alaska, Mann., 1852. Louisiana, Summers. Southern California, Coquillett; cosmopolite.

521. Echocerus maxillosus Fab.—Common here, and in many places throughout the United States and Canada (Florida, Cincinnati, Detroit, Milwaukee; Alaska). Madeira, southern France.

522. Alphitobius diaperinus Panz., Cat. iv (*A. ovatus* Herbst., *diaperinus* Muls.), Fauvel.—Pennsylvania, Ohio, Florida, Arizona, Wickham; cosmopolite.

523. A. piceus Oliv., *fagi* Panz., *granivorus* Muls., Cat. iv (*A. piceus* Oliv., *mauritanicus* Fab., *diaperinus* Panz.), Fauvel.—Alaska, Pennsylvania, Florida Louisiana; cosmopolite.

524. Alphitophagus bifasciatus Say, *4-pustulatus* Steph., *populi* Redtb., *pictus* Men.—Abundant from the Atlantic to the Pacific, breeding in the waste and dust in feed stores. Temperate and southern Europe, Barbary, Caucasia.

525. Palorus depressus Fab.—Pennsylvania, District of Columbia, Kansas, Mexico, South America, Europe. Occurs where meal and grain are stored.

MELANDRYIDÆ.

526. Xylita lævigata Hellen., *decolorata* Rand., *buprestoides* Payk., *discolor* Fab. Maine, Canada, the Lake Superior region; Cincinnati, Dury. Central and northern Europe, western Siberia. Heyden, 148; var. (*nigricans*) *punctulata* Mhm., arctic Siberia. Heyden, 224.

527. Serropalpus barbatus Schall., *striatus* Hellen., *substriatus*, *obsoletus* Hald, —The northern part of the continent from Maine to Alaska (New York, West Virginia, mountainous Pennsylvania, Canada, Michigan, Lake Superior region, Manitoba, Oregon, Colorado). Central and northern Europe, western and eastern Siberia. Heyden, 148; Mann., 1852.

528. Hypulus (*Phlœotria*, *Dircæa*) vaudoueri Muls., *fusca* Lec.—(Widely diffused, but not commonly met with. Extends from Nova Scotia to California, and as far south as North Carolina, Horn, T. xv, 41) Michigan, Schwarz; Lake Superior, Virginia and North Carolina, LeConte. Two specimens occurred here. Europe.

PYTHIDÆ.

529. Pytho depressus Linn., *americanus* Kirby, ? *deplanatus* Mann., 1853.—My European examples of *depressus* are inseparable from *americanus*. The individuals of both countries vary greatly in color and secondary structural characters. The mountainous regions from Canada to North Carolina, New York, Michigan, Ohio, Wisconsin, Kansas; arctic and all Siberia, northern and alpine Europe. Heyden, 156. *Deplanatus* occurs on the Yukon, Alaska.

ŒDEMERIDÆ.

530. Narcedes melanura Linn., *Oedem. apicalis* Say.—Common eastward from the Alleghanies, but rare in western Pennsylvania; Ohio (Cincinnati), Kansas, California. Yucatan, Europe, Caucasia, Siberia, Japan. Heyden, 156.

ANTHICIDÆ.

531. Anthicus floralis Linn.—This species and the following have, till lately, been confused in American collections, which renders the records of distributions of no value. In my collection are examples from Canada, Massachusetts, Florida, southern California and here, Allegheny, Pa. It may be separated from *A. formicarius* by the two minute approximate tubercles on the anterior margin of the thorax; cosmopolite.

532. A. formicarius Goeze, *formicoides* Geoff, [*basilaris* Say], ♂ *quisquilius* Thoms., Cat. iv.—(*A. basilaris* Say, *quisquilius* Thoms.) Fauvel. The examples in my collection are from Canada, Massachusetts and Florida. Probably introduced from Europe.

PYROCHROIDÆ.

533. Pyrochroa fuscicollis Mann., Bull. Mosc. 1854, iv. 301.—Alaska, Horn T. xv. 48. Eastern Siberia to Kamtschatka. Heyden, 149. Described and figured by Motschulsky, Col. Am., 143.

OTIORHYNCHIDÆ.

534. Barynotus Schœnherri Zett., Can. Ent. xxiii, 21.—New Foundland, Nova Scotia, Harrington, Ulke. Sweden, Lapland.

535. Brachyderes incanus Linn., C. 439.—Occurred at St. Louis, Mo., northern and central Europe.

536. Otiorhynchus sulcatus Fab.—Pennsylvania, New York, Massachusetts, Nova Scotia, Canada (Quebec), Vancouver Island, B. C. St. Helena, northern and central Europe. Probably native, Schwarz *et alii*. Rep. Ent. and Bot. Cent. Exp. Farm, Canada, 1893, separat. p. 29, Fletcher. Horn, Mon. p. 61.

537. O. singularis Linn., *picipes* Fab., *granulatus* Hbst.—Brookline, Mass. Europe

538. O. ovatus Linn., *ligneus* ‡ Horn.—Introduced originally from Europe into the New England States, probably in cemetery shrubbery; it has spread westward to Iowa. Nova Scotia, Harrington, *in litt.*; Ottawa, Canada; Detroit, Mich. Abundant here, and known popularly as *the graveyard bug*, It also inhabits arctic Siberia on the Jenisei, and the more southern parts of western Siberia. Heyden, 157; Horn, l. c. 61; Nord., 28.

539. O. rugifrons Gyll.—Several examples of this northern European species were taken at Sydney, Nova Scotia, by Mr. W. H. Harrington, and determined by Dr. D. Sharp, England, to be a slight variety. *O. rugifrons* Horn (Mon. 62), occurring in the Middle States, seems to be different.

540. O. nodosus Fab., *dubius* Stroem., *maurus* Gyll., Cat. iv (*O. dubius* Stroem., *maurus* Gyll., *nodosus* Fab.), Fauvel.—Greenland, Fabricius. Iceland, mountainous and northern Europe.

541. O. alpinus Richter, *monticola* Germ., *lævigatus* Gyll., Cat. iv (*O. arcticus* Fab., *alpinus* Richter, *monticola* Germ.) Fauvel.—Greenland, Fabricius. ? Iceland, northern and mountainous Europe.

542. Phyllobius calcaratus Fab., ? *glaucus* Scop.—Taken once in Canada, and its occurrence may have been accidental; Horn, l. c. 104. No record of its further occurrence has been observed. Europe.

543. Sciaphilus asperatus Bonsd., *muricatus* Fab.—Brookline, Mass., on *Populus balsamifera*, Bowditch; Sydney, Nova Scotia. Determined by Dr. Sharp, Harrington, Psyche v, 137.

544. Barypithes pellucidus Bohm.—Taken abundantly on Staten Island and at Astoria, Long Island, N. Y. Germany, France, common around Paris at the base of the cultivated strawberry, Ent. Am. iii, 188.

545. Strophosomus coryli Fab.—This is likewise common in Europe. It was also taken by Mr. Bowditch, at Brookline, by sifting, and by Mr. H. B. Baily, at South Orange, N. J., on *Betula lenta*, Psyche v, 137. I have specimens taken in one of the New England States in July, 1888.

CURCULIONIDÆ.

546. Sitones lineellus Bonsd., *indifferens, scissifrons* Say.—Kansas, Texas, Lec. Sweden, Germany, the eastern Amur, Behring Island. Mon. 114; Heyden, 184. Vega Exp. 67.

547. S. hispidulus Germ., *hæmorrhoidalis* Schon.—Observed first at Long Branch, N. J., about 1875; this species has spread inland, till now (1894) it has reached Pittsburg, Pa. General in Europe and Siberia. Heyden, 161. Depredates on *Trifolium*.

548. S. flavescens Marsh, *caninus* Gyll.—Pennsylvania, Florida, Iowa, Ohio, Indiana, Illinois; Marquette and Detroit, Mich., Schwarz; New York, Reinecke; Canada and Nova Scotia, Harrington. It is general in Europe. Asia (Turkestan, Mongolia, western Siberia), Barbary. Heyden, 161; depredates on several species of *Trifolium*.

549. S. tibialis Herbst., var. *ambigua* Schon.,—This species is likewise widely diffused, and is probably native, occurring from Canada to Vancouver, and down the Rocky Mountains to New Mexico (Kansas, Dacota, Hudson Bay Territory, Canada, LeConte; New York, Reinecke; Kansas and New Mexico, Snow; Michigan and everywhere in the mountains of Colorado at from 7000–11,500 feet, Schwarz; Vancouver, Taylor). Europe, Crimea, Turkestan. Heyden, 161. There are many varieties.

550. S. crinitus Oliv., ?*seniculus* Mann.—Oregon, LeConte; l. c. 115. Europe, Siberia, Amurland. Heyden, 161; Chabarofka, Heyden, 1887; *seniculus* occurs in California, Mann.

Mr. Fauvel cites the opinion of Mr. Bedel, Faun. Seine vi, 251, 252, that *tibialis* Herbst. is perhaps the true *lineellus* Bonsd., and that *tibialis* LeConte is not that of Herbst; also that *crinitus* Herbst is *seniculus* Mann. All this, however, is opinionative, and the above synonymy is permitted to stand awaiting the necessary comparisons. The American species of this genus require a competent monographer. For other opinions see Mr. Casey. An. N. Y. Acad. Sci. iv, 279, etc.

551. Lepidophorus lineaticollis Kirby.—Behring Strait, the Yukon, peninsula of Kenai, New Mexico, Colorado. Pitlekaj, Nunamo, and St. Lawrence Bay on the Asiatic side of Behring Strait. Mann., 1853; Vega Exp. 34 and 54.

552. Phytonomus punctatus Fab., *opimus* Lec.—New York, Canada, Pennsylvania, Ohio, Indiana, West Virginia (apparently imported). Europe, Barbary, western Siberia; Heyden, 165. Depredates on clover. Discovered in 1881 in western New York; it has gradually spread, till in 1894 it has reached the States mentioned above. T. ix, p. xxxvi; Lintner, 1st Rep. 247; Can. Ent. xvi, 144, 182, 209, 215. Webster.

553. P. elongatus Payk.—Inhabits Greenland, central and northern Europe, and western Siberia. Mon. 125; Heyden, 166.

554. P. nigrirostris Fab., *viridis* Provancher.—Has been imported into some of the Eastern States from Europe, and appears to have a taste for clover. Massachusetts, Blanchard; Michigan, Schwarz; Canada, Harrington; New Brunswick, Fletcher, Can. Ent. xvi, 215, 217; circa-Mediterranean.

555. Lepyrus palustris Scop., *colon* Fab.—Mt. Washington, N. H., Austin; Hudson Bay region, lat. 65° Kirby; the Nelson and Churchill Rivers, Bell; New Mexico, Horn, list of insects taken by Thomas. Europe and western Siberia. Heyden, 174.

556. Hylobius piceus DeG., *pineti* Fab., *pinicola* Coup., *heros* Lec. (undescribed) *L. S.*—Michigan, Schwarz; Lake Superior, Hudson Bay Territory and Canada, LeConte. Central and northern Europe; western and eastern Siberia. Mon. 139; Heyden, 174; Nord., 28; Heyden, 1885.

557. Grypidius equiseti Fab.—Canada, Kansas and the north shore of Lake Superior, LeConte, l. c. 163; Michigan, Schwarz; Ottawa, Canada, Harrington; Hamilton, Canada (my specimens); Iowa, Washington, Wyoming, Wickham. Europe, arctic and west Siberia; Dauria. Heyden, 174; Nord., 28.

558. G. brunneirostris Fab.—Oregon, Mon. 163; Veta Pass, Col., at 9200 feet, Schwarz; my specimens are from Wyoming; northern and central Europe.

559. Notaris (*Erycus*) æthiops Fab., var. *rufipes* Mots., var. *morio* Mann.—*Aethiops* is found in Europe northward from Germany: Siberia (Salair, Altai Mountains); Heyden, 175: var. *lapponicus* Faust., Lapland; var. *rufipes*, in the eastern Amur countries, Col. Am. 158; var. *morio*, in North America (peninsula of Kenai, Kadiak, Vancouver, Great Slave Lake, Canada. All these forms have been united by Faust. Bull. Mose. 1882, 420.

560. Tanysphyrus lemnæ Payk.—This minute beetle is excessively abundant here in all ponds that produce *Lemna*. Michigan, Schwarz; Canada, Harrington. Mon. 178; Can. Ent. xvi, 136. Europe, northern Asia, Japan.

561. Acalyptus carpini Herbst., var. *sericeus* Gyll.—Hudson Bay, Lec. Cat.; Canada, Harrington; Michigan, Massachusetts, LeConte; Wisconsin, Kansas, New Jersey, Dietz; Illinois, Pennsylvania, my collection. Europe, Chabarofka (Amur); P. Am. P. xvii, 621; T. xviii, 271; Heyden, 1887.

562. Anthonomus pomorum Linn., Dietz, T. xviii, 204. One example occurred in Ohio. Europe.

563. Elleschus bipunctatus Linn.; Dietz, l. c. p. 264.—Canada, Michigan, Europe; P. Am. P., 261.

564. E. scanicus Payk., var. *pallidesignatus* Gyll.; Dietz, l. c. 264, Hazleton, Pa. (Dietz's type); Allegheny, Pa. (a variety). Probably introduced from Europe. The *E. bipunctatus*, of the first edition, cited in Can. Ent. xvi, 107, is this species, *fide* Dietz.

565. Rhynchænus salicis Linn., *bifasciatus* Fab., *subhirtus* Horn.—Illinois, Horn; Wisconsin, California, Dietz l. c. 267. Europe, Siberia; Heyden, 177.

566. Nanophyes pallidulus Grav., Mon. 220.—Louisiana; Alamosa, in the Rocky Mountains, Schwarz. Italy, southern France. Mr. Bedel doubts the correctness of the determination, Fn. Seine, vi, 200.

567. Cionus scrophulariæ Linn., Mon. 220; Say, ed. Lec. i, 287.—United States, Say; Louisiana, Summers. Europe, western Siberia. Heyden, 177; Can. Ent. vi, 137.

568. Gymnetron tetrum Fab., *verbasci* Duf.—Pennsylvania, West Virginia, Ohio, New York, Michigan, Canada, France, Germany, southern Europe, Mediterranean countries, southern parts of eastern and western Siberia. Heyden, 177.

569. Cryptorhynchus lapathi Linn.—New Jersey, New York (Staten Island); Ent. Am. iii, 123; Can. Ent. xxiii, 221. Europe, west and east Siberia, Japan. Heyden, 176.

570. Cnemogonus epilobii Payk.—British Columbia and Great Slave Lake, Mon. 269. Marquette and Isle Royal in Lake Superior, Schwarz. Northern and central Europe.

571. Ceutorhynchus rapæ Gyll.—Canada, Middle and Western States, Mon. 274 (Illinois, Michigan, New York, Kansas, Snow). Central and northern Europe.

572. C. erysomi Fab., var. *chloropterus* Steph., var. *cyaneus* Weise.—New York, Indiana, Illinois, Kansas, Louisiana, Ulke *in litt.*; Europe, var. *cyaneus* occurs in eastern Siberia (Blagowestschensk). Heyden, 1887.

573. C. sulcicollis Payk., *cyaneipennis* Germ., Cat. iv.—Ithaca, N. Y.; Baltimore, Md. Europe. Illinois, my collection; Idaho, Wickham.

574. Phytobius velatus Beck, *Eubrichius aquaticus* Thoms.—Detroit (Michigan), Mon. 281; Schwarz, P. W. i, 75 and ii, 165. Vancouver Island (determined for Mr. Wickham by Mr. Ulke), northern and central Europe. Mr. Schwarz l. c. 1st cit. was misled by a false type.

575. Rhinoncus pericarpius Linn., *triangularis* Say, Cat. iv.—This European species is widely distributed eastward from the Rocky Mountains, Kansas, Illinois, Indiana, Michigan, Ohio, Pennsylvania, Canada, Harrington *in litt.* Asia (west Siberia, Turcomania; var. *conjectus* Sch. Siberia). Heyden, 178.

576. R. pyrrhopus Boh.—Abundant from the Atlantic to New Mexico on various *Polygonum*. Individually, there is much variableness in color, and in the coarseness of the thoracic punctuation. Amurland (Chabarofka). Heyden, 1887.

Obs.—Inconspectus Herbst. recorded from southwestern Iowa, Bull. Lab. Nat. Hist. Univ. Iowa iii, 234, is probably an error, as specimens sent to me by Mr. Wickham as this species, were examples of *R. pericarpius*. The European example, with which the comparison was made, was probably the *inconspectus* of authors, which is a synonym of *pericarpius*, and not with the true *inconspectus* of Herbst, which seems to be the species subsequently described by Fabricius as *gramineus*, and so known till recently.

577. Baris scolopacea Germ.—Taken abundantly by Mr. Seeber near Philadelphia, Pa. Central Europe.

BRENTHIDÆ.

578. Cylas formicarius Fab.—*Otidocephalus elegantulus* Summers.—This singular insect lives on the roots of the sweet potato, and occurs in the Southern States (Florida, Louisiana), from which I have specimens. Cuba, Madagascar, India, Cochin China. Mon. 327.

CALANDRIDÆ.

579. Calandra oryzæ Linn., var. *zea-mais* Mots.—This species is cosmopolite, and in this country is distributed from Florida to Alaska, depredating on grain of all kinds. Siberia and the Amur country to Kamtschatka. Heyden, 179. Var. *zea-mais* occurs in Florida and Texas. Length .128–.136 inch. An. N. Y. Acad. Sci. vi, 686.

580. C. granaria Linn., *remotepunctata* Gyll.—North America generally; cosmopolite. Mr. Casey unites these forms, I think, correctly; typical forms of each can be selected, but the great mass of individuals refuse to be separated, l. c. 686.

581. Codiosoma (*Phlœophagus*) spadix Herbst.—Rockaway Beach, Long Island, N. Y., in a plank in the sand between tide lines, Julich. Ent. Am. iv, 35. Shores of the Mediterranean and Baltic Seas, Madeira.

SCOLYTIDÆ.

582. Platypus cylindricus Fab.—Carolina, Chapuis. Europe, northern Africa, Java. This species has not been rediscovered, but is inserted at the suggestion of Mr. Fauvel.

583. Hypothenemus eruditus West., *hispidulus* Lec.—This species is spread by commerce. I find it here depredating on various foreign nuts in the shells of which it breeds. Mines in the pith and wood of dead twigs and vines; infests honey suckle, Hopkins, Cat. Scolyt. West Virginia. Probably of African origin.

584. Xyloterus lineatus Oliv., *bivittatus*, *rufitarsis* Kirby, ♂ *cavifrons* Mann.—Peninsula of Kenai, Sitkha, Queen Charlotte Island, Vancouver Island eastward to Hudson Bay and Maine, and southward to North Carolina, New Mexico and California. Temperate and northern Europe, Siberia. Heyden, 183.

585. Xyleborus xylographus Say, *saxeseni* Ratz.—From the Atlantic to the Pacific in the pine regions. Europe.

Obs.—Pityophagus sparsus Lec. = Pityogenes chalcographus Linn., requires confirmation. Ent. Am. ii, 41.

586. X. dispar Fab., ♀ *pyri* Peck, ♂ *obesus* Lec.—For this synonymy see P. W. i, 44 and ii, 62; Insect Life ii, 280; Nova Scotia; Canada to Virginia. Europe, western Siberia. Heyden, 183.

587. Cryphalus jalappæ Letz.—This species is widely distributed by commerce, probably originating in South America. Its occurrence in this country is probably only occasional. Europe (imported from South America).

588. Coccotrypes dactyliperda Fab.—Which lives in dates and areca nuts, is sometimes brought into this country with these fruits. Ent. Am. ii, 42.

589. Dryocœtes autographus Ratz., *septentrionis* Mann., *semicastaneus* Mann.—"Alaska, Queen Charlotte Island, Canada; Virginia; under pine bark," Mon. 361. Mr. Schwarz took it at Detroit, Mich., and in the Lake Superior region, and agrees with Eichoff's synonymy. Ent. Am. ii, 42. Europe.

590. **Scolytus rugulosus** Ratz.—Probably introduced from Europe, it is in many places from the Atlantic to the Mississippi very destructive to peach, cherry and other fruit trees. Another species, only separable from it by microscopy, breeds in dead hickory limbs. Can. Ent. xvi, 161; xvii, 48; Pr. Ent. Soc. Wash. i, 30. Turkestan, Heyden, 182.

591. **Crypturgus pusillus** Gyll., *atomus* Lec.—"Canada, Massachusetts, New York, Pennsylvania, West Virginia Length .04 inch." Mon. 387; Ent. Am. ii, 56. Europe, Japan.

Obs.—**Hylurgus piniperda** Linn., *analogus* Lec., a subcosmopolite species, was found once in New York, and having never been duplicated, has been erased from the American catalogue.

592. **Hylastes glabratus** Zett., *decumanus* Er., *pinifex* Fitch.—Queen Charlotte Island, Lake Superior, Canada, Wisconsin, Ohio, Pennsylvania, West Virginia, New York. Northern and mountainous Europe, eastern Siberia, the Amur. Heyden, 182; Col. Am. 156.

593. **Hylastes trifolii** Mull., *obscurus* Marsh.—This European beetle was first discovered in this country in 1878 in Yates County, N. Y., depredating on clover, and is now spread westward to Indiana. Lintner, 1st Rep. N. Y., 247; Riley, Rep. Dept. Agric. 1878; Am. Entomologist iii, 180. Webster, Proc. Ind. Acad. Sci. 1892, p. 84.

ANTHRIBIDÆ.

594. **Aræocerus fasciculatus** DeG., *coffeæ* Fab., *capillicornis* Say.—This species is cosmopolite, being carried from place to place by commerce. In this country it occurs in many places on both sides of the continent. I have specimens from Florida, New York and Oregon.

An analysis of the distribution given for the species here enumerated shows that a certain number are at present known only from North America and northern Asia, a certain number from North America and Europe, while the large remainder occurs in all of the three divisions, many of which extend to other portions of the globe, or are cosmopolitan or subcosmopolitan, being distributed extensively by commerce.

Though the subject is beset with doubts and difficulties, an attempt is made in the subjoined lists to separate the species into divisions to represent their probable origin in North America relatively with other portions of the globe. Species which apparently were in North America at the time of its discovery by Columbus are set down as native.

Future investigations and discoveries may add to or extract from these lists which represent only the opinion of the writer founded on deductions from the distribution of each species as recorded in this catalogue. Species cosmopolite, or tending to become so through commerce, are separated from the fourth and shown in a special list.

The number of families represented is 50, the same as in the first edition; the number of genera 299, and the number of species 594.

Species equally native in North America and in northern Asia not yet observed as occurring in Europe—49 species.

Cychrus angusticollis
Carbus vietinghovi
C. mæander
Notiophilus sibiricus
Nebria carbonaria
N. bifara
Bembidium breve
Pterostichus punctatissimus
P. mandibularis
P. empetricola
?P. confusus
P. quadricollis
P. subexaratus
Amara eschscholtzii
A. melanogastrica
A. hyperborea
A. glacialis
A. littoralis
A. remotestriata
Platynus bicolor
Stenolophus ochropezus
Agabus tristis
Dytiscus dauricus
Lyrosoma opacum
Quedius sublimbatus
Stenus parallelopipedus
Tachinus arcticus
Homalium strigipenne
Hippodamia parenthesis
Coccinella monticola
C. tricuspis
Halyzia 12-maculata
Cœnoscelis cryptophaga
Atomaria kamtschatika
Hypocopris formicetorum
Peltastica tuberculata
Meristhus scobinula
Cryptohypnus littoralis
C. barbatus
C. nocturnus
Campylus variabilis
Corymbites sericeus
C. semivittatus
Melanophila guttata
Aphodius aleutus
Phytodecta arctica
Pyrochroa fuscicollis
Lepidophorus lineaticollis
?Rhinoncus pyrrhopus

Species native in North America and northern Asia occurring in Europe—277 species.

Carabus truncaticollis
C. hummeli
Elaphrus riparius
E. lapponicus
Diachila arctica
Blethisa multipunctata
Loricera cærulescens
Notiophilus aquaticus
Nebria nivalis
N. frigida
Dyschirius æneus
Bembidium littorale
B. ustulatum
B. grapei
B. lampros
B. dentellum
B. assimile
B. quadrimaculatum
Tachys nanus
Patrobus septentrionis
Trechus rubens
Pterostichus vitreus
P. arcticola
Amara apicaria
A. erratica
A. interstitialis
A. brunnea
Badister bipustulatus
Platynus obscurus
P. impressus
P. bogemanni
P. 4-punctatus
Blechrus glabratus
Miscodera arctica
Tachycellus cognatus
Haliplus ruficollis

Hygrotus inæqualis
Cœlambus impressopunctatus
Deronectes griseostriatus
Hydroporus alpinus
H. septentrionalis
H. sanmarkii
H. longicornis
H. obscurus
H. fuscipennis
? H. glabriusculus
H. tartaricus
H. melanocephalus
H. tristis
H. palustris
H. oblongus
Ilybius ater
I. subæneus
I. angustior
I. fuliginosus
Agabus congener
A. nigripalpis
A. confinis
A. arcticus
A. nigroæneus
Rhantus notatus
R. bistriatus
Colymbetes paykulli
C. dolobratus
Eretes sticticus
Hydaticus stagnalis
Dytiscus circumcinctus
D. marginalis
D. lapponicus
Graphoderes cinereus
Gyrinus minutus
G. marinus
G. opacus
Helophorus tuberculatus
Hydrobius fuscipes
Cercyon littoralis
C. quisquilius
C. marinus
C. lateralis
C. analis
C. lugubris
C. tristis
Cryptopleurum minutum
Necrophorus vespilloides
Silpha lapponica
S. trituberculata
Silpha opaca
Pteroloma forstrœmi
Homotola plana
Amischa analis
Colpodota sordida
C. parva
C. fungi
Athetha picipennis
A. palustris
Liogluta graminicola
Aleochara lata
A. fuscipes
A. mœrens
A. morion
A. nitida
Dasyglossa prospera
Gyrophæna bihamata
Gymnusa brevicollis
Myllæna dubia
M. minuta
Quedius fulgidus
Q. erythrogaster
Q. lævigatus
Q. molochinus
Q. fulvicollis
Creophilus maxillosus
Philonthus politus
P. umbratilis
P. debilis
P. varians
P. longicornis
P. discoideus
P. fulvipes
P. micans
P. cyanipennis
P. sordidus
P. cephalotes
P. ventralis
P. nigritulus
Xantholinus punctulatus
Leptacinus batychrus
Baptolinus longiceps
Stenus bipunctatus
S. juno
S. pumilio
S. nanus
S. humilis
S. alpicola
S. canaliculatus
S. morio

Stenus tarsalis
S. argus
Lathrobium quadratum
L. terminatum
Tachinus basalis
T. elongatus
Tachyporus jocosus
T. chrysomelinus
T. nitidulus
Cilea silphoides
Conurus littoreus
C. bipustulatus
C. pubescens
Briocharis cingulatus
Bolitobius pygmæus
Mycetoporus splendidus
M. brunneus
Bledius opacus
Oxytelus sculptus
O. rugosus
O. lacqueatus
O. nitidulus
Trogophlœus riparius
T. corticinus
T. pusillus
T. gracilis
Porrhodites fenestralis
Geodromicus plagiatus
Acidota crenata
A. quadrata
Arpedium gyllenhalli
A. quadrum
A. brachypterum
Larithmæum atrocephalum
Olophrum fuscum
Pycnoglypta lurida
Homalium cæsum
H. lapponicum
H. pusillum
H. foraminosum
H. florale
Protinus brachypterus
Megarthrus sinuaticollis
Micropeplus tesserula
Trichopteryx sericans
T. atomaria
Anisostieta strigata
Adonia variegata
Hippodamia 13 punctata
Coccinella trifasciata
Coccinella transversoguttata
C. 11-punctata
Adalia frigida
A. bipunctata
Anatis ocellata
Halyzia 14-guttata
Scymnus arcuatus
Silvanus bidentatus
Pediacus fuscus
Læmophlœus testaceus
Dendrophagus crenatus
Henoticus serratus
Cryptophagus lapponicus
? Atomaria apicalis
Dermestes lardarius
D. cadaverinus
D. vulpinus
Anthrenus museorum
Orphilus niger
Hister merdarius
H. bimaculatus
Gnathoncus rotundatus
Epuræa æstiva
E. boreella
Megligethes brassicæ
Cryptarcha strigata
Enicmus minutus
E. consimilis
Lathridius constrictus
L. nodifer
Corticaria ferruginea
Ostoma ferrugineum
O. grossum
Cytilus sericeus
Byrrhus murinus
B. fasciatus
Cyphon variabilis
C. padi
? C. coarctus
Cryptohypnus hyperboreus
Elater nigrinus
Melanotus castanipes
Athous undulatus
Paranomus costalis
Corymbetes sjælandicus
C. nigricornis
C. rugosus
Chalcophora mariana
Melanophila appendiculata
Eros aurora

Necrobia violacea
Dinoderus substriatus
Aphodius fossor
A. rufipes
Trox scaber
Tragosoma depsarium
Rhagium inquisitor
Acmæops pratensis
Leptura 6-maculata
L. canadensis
Adoxus obscurus
Entomoscelis adonidis
Prasocurus phellandrii
Phædon armoraceæ
Gastroidea polygoni
G. viridula
Melasoma lapponica
Phytodecta pallida
P. viminalis
Phyllodecta vulgatissima
P. vitellinæ
Galerucella nymphææ
Crepidodera hexilines
C. modeeri
Upis ceramboides
Xylita lævigata
Serropalpus barbatus
Pytho depressus
Sitones lineellus
?S. tibialis
Phytonomus elongatus
Lepyrus palustris
Hypomolyx piceus
Grypidius equiseti
Erycus æthiops
Acalyptus carpini
Tanysphyrus lemnæ
Centorhynchus erysimi
Rhinoncus pericarpius
Xyloterus lineatus
Hylastes glabratus

Species native in North America and Europe not at present known to occur in northern Asia—50 species.

Nomius pygmæus
Deronectes depressus
Colymbetes grœnlandicus
Hydaticus lævipennis
Cercyon depressus
Platypsyllus castoris
Leptinus testaceus
Sphærites glabratus
Atheta aquatica
Alecochara verna
Microglossa suturalis
Actobius cinerascens
Baptolinus longiceps
Dianous cærulescens
Stenus montivagus
Tachinus pallipes
Bolitobius exoletus
Pseudopsis sulcata
Trogophlœus memnonius
Ochthephilus biimpressus
Olophrum rotundicolle
Protinus limbatus
P. atomarius
Ptenidium pusillum
P. atomaroides
Trichopteryx ambigua
T. fascicularis
Actinopteryx fucicola
Smicrus filicornis
Rhysodes exaratus
Prostomis mandibularis
Pedacus depressus
Atomaria fuscicollis
Epuræa terminalis
Ips 4-guttatus
Melanophthalma distinguenda
Ostoma oblongum
Calitys scabra
Simplocaria metallica
Corymbites virens
C. cruciatus
Laricobius erichsonii
Melasoma tremulæ
Otiorhynchus nodosus
O. alpinus
Grypidius brunnicorostris
Cnemogonus epilobii
Phytobius velatus
Xyleborus xylographus
Dryocœtes autographus

Species probably introduced into North America now acclimated, occurring in Europe, and those marked with a * likewise in Asia. Many of these are cosmopolite, or becoming so, through commerce—216 species.

Carabus granulatus
C. nemoralis
Leistus piceus
* Clivina fossor
Trechus rubens
Licinus granulatus
? Badister bipustulatus
Pristonychus complanatus
P. terricola
*? Perigona nigriceps
* Plochionus pallens
* Spæridium scarabæoides
Dactylosternum abdominale
* Cercyon unipunctatus
* C. hæmorrhoidalis
* C. melanocephalus
* C. pygmæus
* C. nigriceps
C. granarius
Colon bidentatum
* Bryaxis sanguinea
* Falagria longipes
Dinaræa angustula
* Amischa cavifrons
Atheta coriaria
A. divisa
* A. oraria
* Aloconota sulcifrons
Phlœopora latens
Aleochara puberula
Leptusa hæmorrhoidalis
* Placusa complanata
P. tachyporoides
Oligota parva
O. pusilla
O. pumilio
* Gyrophæna affinis
G. polita
Gymnusa variegata
Myllæna infuscata
Acylophorus glabricollis
* Staphylinus erythropterus
S. cæsareus
Ocypus ater
Philonthus fuscipennis
Philonthus thermarum
P. quisquiliarius
Bisnus procerulus
Cafius sericeus
Xantholinus fulgidus
Leptacinus parumpunctatus
Medon ochraceus
M. obsoletus
M. debilicornis
Hypocyptus longicornis
H. lævisculus
Tachyporus macropterus
Mycetoporus punctus
M. punctipennis
Oxytelus tetracarinatus
Trogophloeus fuliginosus
Coprophilus striatulus
Orochares angustata
Homalium rivulare
Mycetæa hirta
Aglenus brunneus
Murmidius ovalis
Silvanus surinamensis
Cathartus gemellatus
C. cassiæ
C. advena
Nausibius clavicornis
Læmophloeus alternans
L. ferrugineus
L. pusillus
L. fractipennis
Cryptamorpha desjardinsii
* Cryptophagus cellaris
* C. saginatus
* C. acutangulus
* Cœnoscelis ferruginea
Typhæa fumata
Dermestes carnivorus
D. elongatus
D. frischii
Attagenus piceus
A. pellio
Anthrenus scrophulariæ
A. verbasci
A. fuscus

Carcinops 14-striatus
Brachypterus urticæ
Cercus bipustulatus
Carpophilus hemipterus
C. dimidiatus
Nitidula bipunctata
N. rufipes
Omosita colon
O. discoidea
Holoparamecus singularis
Lathridius productus
Cartodere filiformis
C. ruficollis
C. pubescens
C. fulva
C. serrata
C. elongata
Melanophthalma similita
Tenebrioides mauritanicus
* Monotoma picipes
M. 4-foveata
M. longicollis
Anthaxia salicis
Lamprohiza splendidula
Malachius æneus
Opilus domesticus
Tarsostenus univittatus
Necrobia rufipes
N. ruficollis
Gibbium psylloides
Mezium americanum
Sphæricus gibboides
Ptinus fur
P. brunneus
* Ernobius mollis
Xestobium rufovillosum
* Sitodrepa panicea
Nicobium hirtum
Lasioderma testaceum
* Endecatomus reticulatus
Dinoderus pusillus
Onthophagus nuchicornis
Aphodius erraticus
* A. fimetarius
* A. putridus
* A. granarius
* A. lividus
* A. inquinatus
* A. depressus
* A. prodromus
Oxyomus sylvestris
* Pleurophorus cæsus
* Hybosorus illigeri
* Tropinota hirta
Hylotrupes bajulus
Phymatodes testaceus
P. lividus
Gracilia minuta
Neoclytus erythrocephalus
Zeugophora scutellaris
Crioceris asparagi
C. 12-punctata
Sermyla halensis
Galerucella luteola
Crepidodera rufipes
Phyllotreta sinuata
Cassida nebulosa
Bruchus pisorum
B. chinensis
B. obtectus
B. 4-maculatus
Blaps mucronata
B. similis
* Tenebrio obscurus
* T. molitor
Trilobium ferrugineum
T. confusum
T. madens
Gnathocerus cornutus
Echocerus maxillosus
Alphitobius diaperinus
A. piceus
Alphitophagus bifasciatus
Palorus depressus
* Narcedes melanura
* Anthicus floralis
A. formicarius
Barynotus schoenherri
Brachyderes incanus
Otiorrhynchus sulcatus
O. singularis
O. ovatus
O. rugifrons
Phyllobius calcaratus
Sciaphilus asperatus
Barypithes pellucidus
Strophosomus coryli
Sitones hispidulus
S. flavescens
S. crinitus

Phytonomus punctatus
P. nigrirostris
Anthonomus pomorum
Ellescbus bipunctatus
E. scanicus
Rhynchænus salicis
Nanophyes pallidulus
Cionus scrophulariæ
Gymnetron tetrum
Cryptorhynchus lapathi
Centorhynchus rapæ
C. sulcicollis
Baris scolopacea
Cylas formicarius
Calandra oryzæ
C. granaria
Codiosoma spadix
Platypus cylindricus
Hypothemus eruditus
Xyleborus dispar
Cryphalus jalappæ
Coccotrypes dactyliperda
Scolytus rugulosus
Crypturgus pusillus
Hylastes trifolii
Aræocerus fasciculatus

Species cosmopolite or subcosmopolite.

‖ Prystonychus complanatus
† Perigona nigriceps
‡ Plochionus pallens
‖ Falagria longiceps
* Colpodota sordida
* C. fungi
* Atheta coriaria
* Aleochara lata
† A. puberula
Oligota pusillima
* Quedius fulgidus
* Creophilus maxillosus
* Philonthus politus
* P. varians
* P. longicornis
* P. discoideus
* P. sordidus
‖ P. thermarum
* P. quisquiliarius
* P. ventralis
* P. nigritulus
* Bisnius procerulus
* Cafius sericeus
Leptacinus parumpunctatus
* L. batychrus
Medon ochraceus
M. obsoletus
‖ M. debilicornis
* Cilea silphoides
* Oxytelus sculptus
* O. rugosus
* Trogophlœus riparius
* T. memnonius
‡ Murmidius ovalis
‡ Silvanus surinamensis
‡ Cathartus gemellatus
‡ C. cassiæ
‡ C. advena
Nausibius clavicornis
* Læmophœlus testaceus
L. ferrugineus
* L. pusillus
* Typhæa fumata
¶ Dermestes carnivorus
* D. lardarius
* D. cadaverinus
* D. vulpinus
Attagenus piceus
* A. pellio
Anthrenus verbasci
‡ Carcinops 14-striatus
‖ Carpophilus hemipterus
‡ C. dimidiatus
* Holoparamecus singularis
* Enicmus minutus
* Corticaria pubescens
* C. fulva
* C. serrata
* C. elongata
* Melanophthalma distinguenda
* M. similita
‡ Tenebrioides mauritanica
* Monotoma picipes
‡ M. 4-foveolata
* Necrobia rufipes
* N. ruficollis
* N. violaceus
‖ Tarsostenus univittatus
* Gibbium psylloides
‖ Mezium americanum

* Ptinus fur
* P. brunneus
* Sitodrepa panicea
¶ Lasioderma testaceum
‡ Dinoderus pusillus
* Aphodius granarius
* A. lividus
* Pleurophorus cæsus
* Trox scaber
* Hylotrupes bajulus
* Bruchus pisorum
† B. chinensis
¶ B. obtectus
* Tenebrio obscurus
* T. molitor
† Tribolium ferrugineum
† T. confusum
† Gnathocerus cornutus
† Echocerus maxillosus
‡ Alphitobius ovatus
‡ A. piceus
Alphitophagus bifasciatus
Palorus depressus
* Anthicus floralis
† Calandra oryza
† C. granaria
|| Hypothenemus eruditus
¶ Cryphalus jalappæ
‡ Coccotrypes dactyliperda
† Arræocerus fasciculatus

Mr. A. Fauvel gives as the probable origin of these cosmopolite species: *, such as probably originated in the temperate parts of Europe and Siberia; †, in the Orient; ‡, in Ethiopia; ¶, in the neotropical fauna; and ||, of uncertain origin.

Additional Species and Distribution.

147½. **Colpodota pulchra** Kraatz.—Common on the shores of the Indian River, Florida (Schwarz). Central and southern Europe.

188. **Staphylinus erythropterus.**—Mr. Harrington has recently taken two examples of this species near Ottawa, Canada; all the examples formerly taken by him and referred to *cæsareus*, in error, belong to this species.

357. **Dermestes Frischii.**—This species likewise occurs on the sea-coast of Lower California (San Jose del Cabo, Comondu), Horn, Baja California, Proc. Cal. Acad. Sci. ser. 2, vol. iv, p. 321.

434½. **Agrilus sinuatus** Oliv.—Supposed to have been introduced into New Jersey, about 1884, in pear stocks from France and Germany; it is now abundant in that State northward from Newark; Smith, Ent. News v, 311, 323. Germany, France, central Europe.

572. **Ceutorhynchus erysimi.**—The distribution given for this species is of no value, owing to recently discovered erroneous identifications; some of it, with scarcely a doubt, must be transferred to *C. cyanipennis*, the blue form of *sulcipennis*. In *cyanipennis* the striæ of the elytra are shallow, and the hind femora have each a small dent; in *erysimi* the femora are mutic, and the striæ deep.

CORRIGENDA.

Page 351, line 19 from bottom, after arctic Siberia insert: occurs at Saostrov and Chantaika; *B. glaciale* Heer, a variety of *grapei*.
Page 352, No. 31, for Tachysnanus *read* Tachyta nana.
" 356, No. 69, for H. *read* Coelambus.
" 362, No. 128, after *vagans* add Lec.
" 371, No. 230, for debilis *read* debilicornis.
" 380, No. 322, read *Centocerus*.
" 385, No. 375, for Pettit, Cat. and northern *read* Pettit, Cat. Northern.
" 397, No. 488, read Fletcher.

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BRUCHIDÆ	508	1	4	LEPTINIDÆ	130	1	1
BUPRESTIDÆ	431	3	4	MALACHIDÆ	437	1	1
BYRRHIDÆ	407	3	4	MELANDRYIIDÆ	526	3	3
CALANDRIDÆ	579	2	3	MONOTOMIDÆ	403	1	3
CARABIDÆ	1	28	66	MYCETOPHAGIDÆ	350	2	2
CERAMBYCIDÆ	474	8	10	NITIDULIDÆ	369	9	14
CHRYSOMELIDÆ	484	17	24	ŒDEMERIDÆ	530	1	1
CLERIDÆ	438	4	6	OTIORHNCHIDÆ	534	7	12
COCCINELLIDÆ	305	8	15	PHALACRIDÆ	304	1	1
COLYDIIDÆ	321	2	2	PLATYPSYLLIDÆ	129	1	1
CRYPTOPHAGIDÆ	340	4	10	PSELAPHIDÆ	139	1	1
CUCUJIDÆ	324	8	16	PTINIDÆ	444	11	13
CURCULIONIDÆ	546	21	32	PYROCHROIDÆ	533	1	1
DASCYLLIDÆ	411	1	3	PYTHIDÆ	529	1	1
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